Virginia Medical Monthly

Official Publication of the Medical Society of Virginia

Vol. 64, No. 2.
WHOLE No. 1019.

RICHMOND, VA., MAY, 1937

$2.00 A YEAR
25 CENTS A COPY

I. INCIDENCE AND IMPORTANCE OF PNEUMONIA.*

H. B. MULHOLLAND, M.D.,
University, Va.

During the past several years the problems incident to the various aspects of the pneumonia situation have been subjected to a more thorough scrutiny through the establishment of commissions to study this disease in several New England states. The impetus towards this method of study was given by the successful operation of similar groups in New York and Massachusetts. A number of careful analyses of the situation in the north have appeared, but there is a striking lack of similar studies from anywhere south of New York. It is not possible, therefore, to make with any degree of accuracy statements regarding this disease as it exists in Virginia. Your committee is now engaged in an attempt to gather such data—not only as it pertains to cases hospitalized, but also particularly to the problem met with in general practice.

Pneumonia remains among the leaders in the causes of death listed in vital statistics. In Virginia the rate of reported cases per 100,000 inhabitants has varied from 97.5 to 185.3 in the years 1929 to 1935, inclusive. It is our impression that the disease is not as serious and that the mortality rate is lower in this section than in the north. Blackford[1] has accumulated the material from this hospital, which supports this in so far as our local experience is concerned.

Numerous excellent studies in regard to the incidence of the various types have appeared from New York, Boston and other northern cities. A recent report by Bullowa and Wilcox[2] emphasizes the fact that types vary in their incidence from year to year, and that mortality rates may show quite a wide variation in the same manner.

In an analysis of 4,048 cases they found the mortality rate to vary from 21 to 27 per cent in adults and 7 to 20 per cent in children from year to year. It was also noted that the types common to adults, namely I, II, III, V, VII and VIII, with the exception of I, were infrequently found in children; types VI and XIV occurring more commonly in the latter. In causing death types II, III, XV and XXIII were the most fatal for adults, whereas other types were found to be more serious for children. Pneumonia in general takes its toll more frequently before two years of age and beyond sixty and the fact that type III has been considered to be the most virulent is seemingly due to its increasing incidence in persons over sixty years of age.

The separation of the pneumococcus into its various types is important not only from the standpoint of etiology but from the possibility of future development of specific anti-sera by which the condition may be treated. Furthermore, it seems more logical to classify the disease on an etiological basis rather than by anatomical distribution, which at best is exceedingly inaccurate.

Your committee hopes that through the cooperation of the State Society in general a more comprehensive and critical estimate of the incidence and importance of this condition as it now exists in this State may be formulated and that this may lead to a curtailment of the number of cases and a lower mortality rate in those who contract the disease.

REFERENCES

1. Blackford, S. D.: To be reported.
2. Bullowa, J. G. M., and Wilcox, Clair: *Arch. Int. Med.*, 59:394, 1937.

*From the Department of Internal Medicine, University of Virginia Hospital.

EDITOR'S NOTE: This and the following three articles written by members of the Pneumonia Commission of the Medical Society of Virginia are designed to set briefly before the profession of Virginia the leading facts concerning the incidence, diagnosis and treatment of pneumococcic pneumonia.

II. DIAGNOSIS OF LOBAR PNEUMONIA.*

HARRY WALKER, M. D.,
Richmond, Va.

Prodromal symptoms occur in approximately 50 per cent of all cases of lobar pneumonia; however, these symptoms are often of such a vague nature that it is impossible to recognize their significance. The most important forerunner of this disease is the common cold. In fact, acute coryza so often precedes this disease that every case should be considered as a potential case of pneumonia.

In adults in its typical form, primary acute lobar pneumonia is in all probability the easiest of all infectious diseases to recognize. The history of chill, pain in the chest, fever, cough and expectoration of rusty tenacious sputum, rapid respiration accompanied often by herpes, makes the diagnosis practically certain even in the absence of local physical findings in the lungs. Other cases (approximately 40 per cent) are by no means so typical. Consequently, one should constantly keep in mind not only the protean manifestations of lobar pneumonia, but also the fact that no one symptom or sign is consistently present in all cases.

SYMPTOMS

Chill: True chill is present in about 60 per cent of cases as the initial symptom. Chilliness occurs in another 10 per cent. The more rapid the rise in temperature, the more likely the patient is to have a chill. In the old and in those who are subject to chronic diseases, a chill is less common than in those who are robust and in good health at the beginning of the attack.

Fever: Fever is practically always present, although we have seen several cases in which it was absent. The absence of fever is usually, though not always, found in those suffering from shock or cachexia when the attack of pneumonia begins. In the typical case the temperature rises rapidly and within a few hours reaches a level by mouth of about 104° F. or higher, and remains almost constant throughout the disease except for slight morning remissions. Apical pneumonia patients are apt to have higher temperatures than those in which other lobes are involved. The same is true of children while, in the aged and debilitated, lower temperature readings are the rule. The fever is often readily influenced temporarily by antipyretic drugs and hydrotherapy. In about 40 per cent of the cases a febrile curve is either remittent or intermittent. In about 60 per cent of the patients, the temperature falls by crisis, in 40 per cent defervescence takes place by lysis, and as a general rule the more abrupt the beginning the more abrupt the ending. It should be remembered, however, that a rapid fall in temperature is not always followed by a termination of the disease. If the respiratory and pulse rate do not also fall to normal at the same time, a true crisis has not taken place. This condition is known as a pseudo-crisis and is of serious omen.

Pain: Pain occurs in about 85 per cent of all cases. In the beginning it is often agonizing but, as the disease progresses, it becomes less severe. It is made worse by coughing, deep breathing or sneezing. In general, it is referred to the nipple or axilla of the affected side. In central or apical pneumonia it may be absent. When the peripheral portion of the diaphragmatic pleura is involved, the pain is often referred to the abdomen; this occurs in about 7 per cent of cases of pneumonia. When the central portion of the diaphragmatic pleura is involved, the pain is usually referred to the neck along the trapezius muscle of the same side. Contra-lateral pain is rare and should always be questioned.

Respiration: Not only is there difficulty in breathing, dyspnea, but there is tachypnea as well. In adults the rate is usually from thirty to fifty per minute, about twenty per minute at first with a rise in rate as the disease progresses. In children the rate sometimes reaches 80 to 100 per minute. The increased respiratory rate is partially due to pain in the chest which causes shallow breathing, and possibly to a slight extent to loss of function in part of the lung; however, its chief cause is toxemia. This is shown by the return of the respiratory rate to normal at the time of the crisis while at this time there is no corresponding change in the pathology of the lung. Cheyne-Stokes breathing is a rare but grave sign. The same is true of pulmonary edema.

*From the Department of Medicine, Medical College of Virginia.

Cough and Expectoration: At first the cough is apt to be paroxysmal or hacking in character and unaccompanied by sputum. In senile, alcoholic, apical and terminal types of pneumonia cough may be absent throughout the course of the disease. Often swallowing or talking precipitates an attack. When the cough is associated with sputum, it is less troublesome. Its sudden disappearance is often an unfavorable sign. Sputum is present in 75 per cent of the cases. Like cough, it is more likely to be absent in those who were not robust at the beginning of the disease. The character of the sputum may vary considerably, and there is only one type of sputum that is diagnostic of lobar pneumonia. This is the so-called brick-dust sputum or rusty colored sputum. It is viscid, gelatinous and tenacious, and is expelled from the patient's mouth with great difficulty. So-called "prune-juice" sputum is not diagnostic. The amount expectorated daily varies from 150 to 300 ccs; after the crisis the amount is considerably more.

Circulatory Symptoms: The pulse is small during the chill; as the temperature rises, it becomes full and bounding and the rate is usually in proportion to the degree of fever. It is rarely dicrotic; irregularities may occur. The blood pressure readings often fall as the disease progresses. At one time it was thought that, if the pulse rate per minute exceeded the blood pressure in mm. of mercury, the prognosis was grave. Our experience leads us to doubt such an assertion. Heart sounds are usually normal in uncomplicated cases except for accentuation of the pulmonic second sound. Murmurs sometimes develop and their significance in the absence of embolic phenomena is not easy to interpret. Diastolic murmurs developing during the course of the disease with few exceptions mean a complicating acute bacterial endocarditis. Cyanosis may appear early or late. In the later stage of the disease it is very common; it is due chiefly to anoxemia.

Gastro-Intestinal Symptoms: The tongue is usually coated. This is not considered as a part of the disease but due both to the fact that the patient eats a liquid diet and the lack of oral hygiene. The appetite is lost or greatly impaired. Thirst is often marked. Nausea and vomiting are common in the early stages, and constipation is seen in over 75 per cent of the patients. Tympanitis is almost constantly present in severe cases. Jaundice occurs in about 5 per cent and is of no significance as a prognostic guide.

Central Nervous System Symptoms: Headache is often present in the beginning of lobar pneumonia; however, it usually disappears before the third day. Osler placed the cases of central nervous system features under four headings:

1. Cerebral pneumonia of childhood. In this type convulsions are common, followed by high fever, headache, delirium, irritability, and signs of retraction of the head. Lumbar puncture is often necessary before the correct diagnosis can be made.
2. Apical cases.
3. Chronic alcoholics, especially those in which alcohol is withdrawn; and
4. Those cases in which the symptoms suggest uremia. In this group stupor and a muttering delirium are common findings.

Paralysis of the muscles occasionally occurs and, contrary to the general opinion, this is sometimes transitory.

PHYSICAL SIGNS

The objective symptoms of cough, cyanosis, rusty sputum, dyspnea and herpes are of marked importance in the diagnosis of pneumonia, yet all physicians agree that, when present, the local physical signs in the lungs give one just as useful information. While it is true that critically ill patients should be disturbed as little as possible, it is, we believe, to the interest of the patient that the heart and lungs be examined daily, for it is through this measure that one best learns the extent of the local lesion, its spread from lobe to lobe, the development of resolution, and the important complications, such as empyema, acute bacterial endocarditis and pericardial effusion which so often make their appearance in this disease.

Inspection: In typical cases the patients look acutely ill. The acceleration of the respiratory rate is striking as are the movements of the accessory muscles of respiration. Sometimes respiration is asynchronous. As a rule, restriction of the chest on the affected side is definite. Sometimes this is accentuated by a compensatory increase on the opposite side. Litten's sign rarely helps sufficiently to warrent its investigation. Cyanosis is often found. Herpes, although usually found on the lips, has been repeatedly found on the nose, the tongue, the cheek and about the eye. Their location is in no way related to the location of the disease in the

lung and their presence or absence has no prognostic significance.

Palpation: The skin is hot and dry in the early stages. Sweating is more pronounced as the disease progresses and especially during the crisis. Palpation confirms the lack of expansion seen on inspection. At times a pleural friction rub may be felt and tenderness may be demonstrated over the diseased lung. When the consolidation is not centrally located and the bronchi are patent, the tactile fremitus is increased; it should be remembered that fremitus is usually better felt over the right lung than the left.

Percussion: Percussion, when properly done, often yields valuable information. Normally, when patients are turned on one side, the percussion note over the dependent base is more resonant than over the upper side. If there is doubt, it is best to turn the patient in bed and re-examine before reaching a definite conclusion. In the early stage, the note is often unchanged. As consolidation progresses the normal note gives away to dullness, and it is only with the development of fluid that the note becomes flat. When consolidation is very extensive, there may be hyperresonance over the healthy portion of the lungs. Dullness is often present throughout convalescence.

Auscultation: In the stage of engorgement, the breath sounds are usually suppressed. Shortly after the onset, one can often recognize fine crepitant rales at the end of inspiration. These crackling sounds resemble the rubbing of the hair of the scalp between the fingers above the ear. Laennec emphasized these rales as the most characteristic sign of pneumonia. At the present time they are not regarded as pathognomonic of lobar pneumonia. When consolidation is complete, the breath sounds become bronchial or tubular and unaccompanied by any adventitious sounds. The blowing quality is first noted on expiration. Shortly afterwards, the inspiratory and expiratory phases become equal in length and of a peculiar high pitch. One should always examine carefully the axillary region in every case suspected of having pneumonia, for when the disease affects the upper lobe, physical signs are often found only in this area. When resolution begins, mucous and moist rales which vary in size are heard. As resolution progresses, the bronchial breathing becomes broncho-vesicular and then vesicular. As a rule, this progression to normal requires from two to three weeks. While breath sounds and rales are the most important changes heard with the stethoscope, they are not the only changes. Whispered voice and spoken voice are usually intensified when the lung is fully hepatized. A pleurisy rub synchronous with respiration and varying in intensity and quality is often heard.

Roentgen Ray: Most physicians agree that the X-ray has afforded great aid in the recognition of pneumonia and in the study of its progress; however, in the typical case it is a luxury and, because of the ill effects of moving patients, often does more harm than good. In atypical cases, however, the roentgen ray is often necessary to establish the correct diagnosis.

Special Features of Atypical Pneumonias

Occasionally the duration of pneumonia may not last longer than twenty-four hours; much more often the duration is not longer than forty-eight hours. It should be pointed out that such cases were frequent before serum therapy came into use.

In central pneumonia the important features are the constitutional symptoms without local findings in the lung. The X-ray is often necessary to prove the diagnosis. In the aged pneumonia often begins insidiously, the febrile reaction is not so intense, and the physical signs vary from being markedly intense to those of little significance. In apical and alcoholic cases symptoms referable to the central nervous system are much more likely to be present. Other variations of symptomatology have already been discussed.

Laboratory Findings

The urine has a high specific gravity and contains a trace of albumin. Since these findings are common in all infectious diseases, they have no significance in the diagnosis of lobar pneumonia. The blood count, as a rule, shows a definite leukocytosis, the average total count being around 15,000 per cmm. The polymorphonuclear count is also increased. Study of blood smears is of doubtful value in the prognosis. The sputum, of course, should be typed.

Differential Diagnosis

The possibility of pneumonia has to be considered in almost every disease that involves the lungs. However, the following conditions are generally considered as being those which most commonly cause the greatest difficulty in diagnosis—

Pleurisy with Effusion: In pleurisy with effusion the clinical signs of flatness to percussion, absence of breath sounds and displacement of the heart are usually present. In some cases, however, there is no displacement of the mediastinal structures and the breath sounds over the fluid are bronchial in character. When confronted with this situation, the finding of flatness rather than dullness over the involved lung is almost diagnostic of fluid. The question sometimes has to be decided by paracentesis.

Pulmonary Infarction: This condition is less likely to begin with a chill. The fever is not so high and expectoration of frank blood is more frequent. It is common in patients suffering with congestive heart failure; in fact, so common that the diagnosis of pneumonia should never be made as a complication of this disease unless pulmonary infarction can be definitely excluded.

Tuberculous Pneumonia: In this condition the history, physical examination and blood studies at the beginning may not help in making the differential diagnosis between tuberculous pneumonia and lobar pneumonia. Tuberculous pneumonia, however, is longer in duration and this fact causes suspicion which leads to examination of the sputum for tubercle bacilli and these organisms are usually found without difficulty.

Bronchopneumonia: The differential diagnosis between bronchopneumonia and lobar pneumonia is from a practical standpoint of little importance. At the present time it is considered to be more important to demonstrate the bacteriological cause of the disease rather than to classify it according to anatomical changes.

Massive Atalectasis: This situation is thought to be due to the occlusion or compression of a larger bronchus. The results are diminished motion on the affected side and displacement of the heart and other mediastinal structures toward the side of the lesion. The findings on auscultation and percussion vary and are of no diagnostic significance. While this condition occurs more frequently after major operations and injuries to the chest, it sometimes occurs without any apparent cause.

Abdominal Conditions: Because of the fact that the pain of pleuritic disease is often referred to the abdomen, this condition may be confused with acute surgical conditions of the abdomen. However, the chill, cough, negative urine and the relation of the pain to respiration usually make the diagnosis easy.

Other Conditions: Other conditions, such as rheumatic virus involvement of the lung, psittacosis, tularemic pneumonia, and congenital cystic disease of the lung are so rare that they have little practical significance and should be considered only under unusual circumstances. In pulmonary cases in which the symptoms and signs are prolonged, a lesion obstructing the bronchus, such as bronchogenic carcinoma, should be considered as a complicating factor.

BIBLIOGRAPHY

1. Textbook of Medicine: Cecil, 3rd Edition, 1933, W. B. Saunders Co., Philadelphia, Pa.
2. Physical Diagnosis: Cabot, 11th Edition, 1934, William Wood & Co., Baltimore, Md.
3. Principles and Practice of Medicine: Osler, 12th Edition, 1935, McCrae; D. Appleton-Century Co., Inc., New York City.
4. Physical Diagnosis: Elmer and Rose, 6th Edition, 1930, The C. V. Mosby Co., St. Louis, Mo.
5. Textbook of Medicine: Emerson, 1st Edition, 1936, J. B. Lippincott Co., Philadelphia, Pa.
6. Diseases of the Chest and the Principles of Physical Diagnosis: Norris and Landis, 5th Edition, 1933, W. B. Saunders Co., Philadelphia, Pa.

III. GENERAL CARE OF PNEUMONIA.

PHILIP S. SMITH, M.D., F.A.C.P.
Abingdon, Va.

One of my medical teachers, not given to aphorisms, once remarked that a disease which required one to refer to a text on therapeutics was not apt to be influenced definitely by the drug or agent employed. His thought, of course, was that the physician is familiar with therapeutic agents that have either a specific effect or are otherwise definitely indicated in a given disease entity; others are merely palliative or empirical.

Probably no disease better illustrates the aptness of the foregoing observation than does pneumonia. In recent years the introduction of a specific serum for certain types of pneumococcic pneumonia may well justify a careful reading of the literature regarding

XUM

this agent in treating appropriate types of the disease. The average senior student of medicine is familiar with most of the other agents employed. This, however, is not equivalent to saying that the medical student possesses keen clinical judgment in appraising the condition of the patient from day to day during the illness and in selecting the measures indicated on the basis of years of critical observation and experience. Few diseases are so dramatic over a short period of a few days as is the average case of pneumococcic pneumonia. None, I think, calls for better judgment in self restraint on the part of the attending physician.

Doubtless in the symposium sponsored by the Medical Society of Virginia Pneumonia Commission sufficient emphasis will be placed by others on the importance of pneumonia prevention. This resolves itself largely into educating the public that a cold with fever should be regarded as potential pneumonia and requires rest in bed. If for a period of one year the population of Virginia could be induced to act on this principle, it is believed confidently that the incidence of pneumonia could be curtailed materially. Of course, this would embrace all cases of so-called grip or influenza.

Certainly at the onset of definite evidence of pneumonia the patient should be confined to bed. Too often exigencies of one kind or another prompt the victim to get up to wait on other members of the family or attend to some important matter of business. An instance of this occurred in a patient with influenzal pneumonia who recently died under my care. In most of the severer types of pneumonia it is not difficult to persuade the patient to remain bedfast. The duration of the clinical symptoms and signs, and the general physical status of the individual should determine the length of time he should remain recumbent.

The drugs employed in treating pneumonia are mentioned first not because of their relatively greater value than other measures, but because of the important position given to them by some practitioners and the number that have been advocated. I have frequently seen patients with pneumonia who, I felt were definitely handicapped by the conscientious efforts of the attending physician to combat with drugs the various symptoms of cough, increased pulse rate, respiratory embarrassment, abdominal distention, chest of upper abdominal pain, etc. This occurs as frequently in children as in older patients. The chief objections to this tendency to overtreat is the frequent disturbance of the patient in the administration of the various medicines and, more important still, the probability that it prevents the intake of as much food as might otherwise be possible. It will clarify one's thinking to remember that no drug yet discovered, even though effective in killing the responsible organisms in the laboratory, can be given in sufficient concentration and dosage to exert a germicidal effect in the patient. More than once in our hospital work we have been cornered by the patient's family and questioned critically because of the fact that no drug other than possibly a cough sedative at night was being administered. An intelligent individual can be reassured in a matter of this kind, but the majority will remain critical. In general practice this problem is more real than in hospital work. A placebo such as magnesium oxide can be used to satisfy the family without harm to the patient.

The foregoing observations should not be regarded as an expression of therapeutic nihilism. Probably no patient adequately treated recovers or dies from pneumonia without the administration of one or more indicated drugs either orally, hypodermatically or externally. The individual physician can best answer the question as to what drugs to employ by asking himself what he would wish done for himself if he were the patient.

No categorical schedule of drug therapy can be discussed or employed in practice. Since the treatment is admittedly palliative, one's therapeutic "sails" must be adjusted to the prevailing and rapidly shifting currents. This thought is regarded as fundamental and all-important. Any other approach will mark the doctor as unfit to steer a proper course.

It is customary if the patient is seen shortly after the acute onset of the disease to administer a purgative such as castor oil. Thereafter, a mild laxative, or, better still in most cases, a non-irritating enema is usually indicated. The limited amount of food taken by the iller patients would not necessitate enemata often, but the frequently encountered complication of abdominal distention makes such a procedure warranted. Carminative drugs given orally in pneumonia probably have little influence in preventing or overcoming distention. If an ordinary saline or soap-suds enema is not effective, the inclusion of glycerine and a small amount of spirit of turpentine seems at times helpful. Sometimes magnesium sulphate added to the fluid produces results. Hot applications to the abdomen whether in the form of

a stupe or otherwise may relax spasm and aid expulsion of gas. Every physician who treats pneumonia appreciates the necessity of preventing or controlling an unusual amount of abdominal distention as far as possible. In some cases it may have a direct bearing on the prognosis.

Pain representing an acute fibrinous pleurisy is generally a disturbing symptom during the first few days of the disease. Heat to the painful area is grateful to the patient and generally alleviates the distress. A counter-irritant in the form of mustard plaster or hot water bags oftentimes will answer the requirement. Diathermy treatments directed to the chest seem to be more effective than the external applications. It may exert some influence on the pneumonic process itself, but this apparently has not been proven. Strapping the lower thoracic wall snugly with adhesive usually relieves much of the pain, but the straps naturally prevent a satisfactory examination of the affected lung and pleura. When the pain is not controlled by such measures it may require small doses of morphine and atropine hypodermatically. The dosage and frequency of administration of morphine should be minimized as far as possible because of its recognized depressant effect on the patient's respiration—already embarrassed. A light pneumonia jacket is employed by some physicians. Heavy poultices are not thought warranted.

Experience and research do not indicate that any drug, or combination of drugs, administered to influence the pneumonic lesion is helpful or warranted. Too often this leads to unnecessary and objectionable medication. Expectorants during the acute stages of the disease accomplish nothing but harm. A hundred or more calories of food instead of each teaspoonful of such medicine is better therapy. I have heard conscientious physicians state that camphor in oil administered intramuscularly in lobar pneumonia was a specific in their hands; that if the dosage be massive the mortality can be reduced to a minimum. Such is not the experience of most physicians. Other drugs, for example optochin, have been shown capable of pneumococcicidal action *in vitro* but have not been proven effective in safe dosages given patients. Optic neuritis is an important untoward effect of such drugs.

Digitalis in pneumonia has been studied experimentally and clinically for a number of years. The clinical study made in New York City, indicating that the mortality was higher in lobar pneumonia in the group of patients receiving digitalis than in a similar group to whom the drug was not administered, is familiar to most of us. Circulatory failure rather than myocardial failure seems to be a terminal complication in most fatal cases. Digitalis is probably not very helpful in preventing or combating vasomotor collapse. One, therefore, seems warranted in stating that there is no justification in giving the drug routinely or merely because the patient has pneumonia. However, it is my belief that at times there are clear-cut indications for its employment. For example, when there is evidence of cardiac dilatation with or without auricular fibrillation, the indications for exhibiting the drug would appear conclusive. Again, in a patient who has had previous myocardial insufficiency one is warranted in trying to anticipate heart failure by digitalization in advance of symptoms and signs of decompensation. Probably in most elderly patients with pneumonia there may be assumed varying degrees of myocardial impairment. Sound clinical judgment and a broad experience are necessary in arriving at a competent decision in such matters. It is most unfortunate if nausea and vomiting induced by the drug prevent an adequate intake of food.

Epinephrine (ardenalin) solution given hypodermically is theoretically the drug of choice in vasomotor failure. Its effects are of short duration and frequently disappointing in patients with pneumonia. In circulatory collapse glucose solution intravenously and hypodermics of strychnine are of value. The volume of glucose solution should not be sufficiently large to cause too great a "load" on the already embarrassed circulatory system, and should be given slowly.

Whiskey and brandy used as drugs have been confused with religio-political considerations of such agents taken for beverage purposes. No one questions the value or propriety of alcohol when applied to the back and extremities of an acutely sick febrile patient or one confined to bed for long periods of time. Its cleansing, antipyretic and antiseptic properties are recognized. It aids materially in preventing bed-sores. It is distinctly refreshing and yet relaxing to the patient when used externally. It has been proven fairly conclusively to be without effect orally as a measure to control or combat cardiac failure, but in an elderly patient sick primarily with decompensation the administration of small amounts of whiskey or brandy, aside from any food value, measur-

XUM

ably improves the morale of the patient. This more optimistic outlook is of importance also both in the acutely ill patient with a five to nine-day lobar pneumonia and the lobular type that may run a course of several weeks. Alcoholic addicts are peculiarly susceptible to pneumonia and the mortality is higher than in those more temperate. It is a mistake to try to reform the habits of such individuals when ill with pneumonia. Withholding the drug will increase the probability of losing the patient before he has an opportunity to correct his addiction.

Reference to a number of other drugs of doubtful value, though not infrequently administered, would prolong unnecessarily this simple discussion.

It is a good plan, if possible, to have laboratory examinations made of the patient's sputum even though specific serum therapy is not contemplated. It is my impression that a marked preponderance of streptococci in the expectorated bacterial flora adds gravity to the prognosis.

Fresh, reasonably cool air is a stimulant to respiration and circulation. It promotes much comfort to the patient's distress. If oxygen *per se* is not needed or feasible, a well-ventilated room is usually available. Chilling of the patient during baths or at any time is highly undesirable. The bedclothes should be warm but light. These simple facts, recognized and utilized by the older type of physicians, are often overlooked by younger doctors more intent upon an ultra-scientific approach to the problem.

Sleep should be provided by a quiet environment, alcohol sponges, by the employment of one of the barbiturates, and if necessary a small dose of one of the opiates. A reasonable amount of rest to a distressed body and mind is a *sine qua non* of good practice.

The Pneumonia Commission included in its questionnaire an inquiry regarding the value and availability of competent nursing care of patients with pneumonia. There is an honest difference of opinion regarding the value of many measures used in treating pneumonia, but no one, I think, will question the importance of competent nursing attention in this disease. Whether the course be relatively short and stormy, or prolonged and capricious, the well-trained, conscientious nurse intent upon maintaining the patient's morale, encouraging the intake of adequate amounts of nourishing, palatable food, caring for the bed so as to provide the maximum comfort, insuring adequate amounts of fresh air and yet maintaining needed protection from exposure—these and many other recognized functions of a conscientious, sensible nurse may well turn the scales in the patient's fight for life.

The diet, as in other acute infections, should be one that contains the maximum number of calories and yet is digestible. The importance of abdominal distention has been mentioned and the selection of dietary articles should include those least calculated to result in flatulence. As in other diseases, a diet solely of liquids at times appears to cause more distention than one of a soft or semi-solid character. In an illness of short duration vitamine needs are not of the same importance as in others of long duration. Fluids tend to lessen fever, dilute toxins, promote excretion of waste material and hence should be supplied orally or otherwise. In elderly patients with circulatory embarrassment or renal disease the patient's tolerance of fluids should be considered and the water balance maintained.

Much unnecessary anxiety usually attends the crisis of lobar pneumonia. If a nurse is in attendance she will have immediately wrapped the patient in warm blankets with additional hot water bags. These measures and the administration of a hot cup of tea or other hot beverage are usually all that is needed. If the situation calls for anything more, a dose of whiskey or brandy and a hypodermic of strychnine may be employed.

It is assumed that special methods of treatment have been covered by others contributing to the symposium. No apology is offered for the simplicity of this paper. In view of the topic assigned, detailed references to the literature and a lengthy bibliography would appear inappropriate. The paper is merely a reflection of the writer's views and should not be regarded as "official" or representative of the opinion of the Pneumonia Commission.

Johnston Memorial Clinic.

IV. SPECIAL THERAPEUTIC PROCEDURES IN THE CARE OF PNEUMONIA.

WALTER B. MARTIN, M.D.,
Norfolk, Va.

Accurate evaluation of the effectiveness of certain special methods of treatment of pneumonia is difficult. When one considers the natural history of the disease it is often uncertain whether a particular case terminates favorably as a result of the treatment employed or in accordance with the normal course of the infection. Experienced clinicians may reach a definite conclusion as to the value of a certain method of treatment. Having seen many cases of a disease, they are quick to appreciate a departure from the usual course and may accurately correlate such changes with the therapy employed. Such clinical impressions are of importance only in proportion to the ability, experience, judgment, and mental integrity of the physician making the observation.

On the other hand, the statistical approach to the problem is full of pitfalls. The mortality rate in pneumonia varies with different years and with the seasons of the same year. Age, climatic conditions, economic status, and racial origin all have their effect. The type of invading organism and the resistance of the individual host are important factors. Associated diseases or the aftermath of preceding infections affect the individual's resistance. Even chance must be allowed for in evaluating statistics on pneumonia death rates under varying conditions. As a consequence, statistical studies must be based on large groups, with adequate controls, bearing in mind all the variables previously mentioned.

Statistics taken from large groups would indicate that the death rate in lobar pneumonia has not been materially lowered over a period of fifty years except in certain groups treated by special methods. There have been marked variations in the average mortality from year to year, but over a long period there has been no substantial downward trend. It would seem worth while, therefore, to examine the effect on mortality of these special methods of treatment that have been developed during the past two decades. Since these methods have as yet had only a limited application, they have probably not materially affected the general mortality. The lessons learned from these experiences, however, may yet have a wider application and thus lead to a real advance against the entrenched forces of this great scourge.

SERUM THERAPY. While attempts at serum therapy were made as early as 1898, no sound basis for such treatment was formulated until 1913, when Dochez and Gillespie[1] proposed a biological classification of the pneumococci. Their suggestion led to the preparation of the first specific serum against Type I and Type II pneumonia by Cole[2]. The Cole serum was unconcentrated, and large doses were required. On the whole, reports on its use were favorable and showed a distinct lowering of the mortality rate, especially in Group I cases. The development by Felton[3] of a concentrated pneumococcic antibody solution, freed from the larger part of the foreign protein in the original serum, gave a great impetus to serum therapy.

The Neufeld method of determining the type of pneumococci has greatly facilitated the use of serum. This method of typing has made the early use of serum possible, and has also brought its use within the range of the general practitioner. Since great stress has justly been laid on the early administration of specific serum, this marks a great advance. The majority of pneumonia patients that enter our hospitals are well past the time when serum is most effective. The average duration of the disease on admission to St. Vincent's Hospital was 5.5 days, Norfolk General Hospital, 5.8 days, and the U. S. Public Health Service Hospital, Norfolk, 3.5 days. It is thus seen that the general practitioner is charged with the responsibility of the early recognition and treatment of pneumonia.

If specific serum therapy is to be effective on a large scale it must be put within the reach of the general man. Through the efforts of the Massachusetts Pneumonia Commission this has been accomplished in that state. For a period of three years the State of Massachusetts has furnished free Type I antiserum and has established typing stations at convenient points to make possible the rapid typing of pneumonia cases. As a result of this, the mortality

XUM

of Type I pneumonia throughout the State of Massachusetts has been cut in half.

Cecil[4] has recently collected a group of one hundred and sixty Type I cases to whom serum was given within twenty-four hours of the onset of the disease. There were only eight deaths in this series, or a mortality of five per cent. Abernathy[5] reports twenty-five consecutive cases, all treated early with Type I serum, without a single death. When specific serum is administered in adequate amounts to Type I pneumonia patients within the first three days, the average mortality has been only about ten per cent. Even late in the disease serum should not be withheld. When one has observed the rapid change in a patient's clinical condition, reduction in toxicity, lowering of pulse and respiration, after serum, even in late cases, the clinical impression is very strong that serum therapy is worth while even under these conditions.

Rapid typing of pneumococci has been made possible by the Neufeld method. Material may be coughed up by the patient, obtained by swabbing the throat, from blood cultures, or by aspirating the consolidated lobe. The last proceedure is not accompanied by any great danger, provided the consolidation is fairly well advanced.

Specific serums are now available commercially, or soon will be, for Types I, II, V, VII, VIII and XIV. Cecil[4] states that approximately sixty-five per cent of lobar pneumonias may now be treated with specific serum. Type II pneumonia is much more resistant to serum therapy and requires larger doses, 100,000 to 200,000 units, as compared to 80,000 to 150,000 for Type I. The lowering of mortality in Group II, while quite definite, is not as striking as in the Group I cases.

The administration of serum should be preceded by careful tests for hypersensitiveness. Both the ophthalmic and the intracutaneous tests should be used. The ophthalmic test is quite simple. After careful inspection of both eyes, a drop of 1-10 dilution of horse serum is dropped into one eye. If hypersensitiveness exists, it will be evidenced by marked congestion of the conjunctiva, appearing in ten to twenty minutes. The intracutaneous test consists in the intracutaneous injection of a drop of 1-100 dilution of horse serum. A positive reaction is shown by the appearance of a typical urticarial wheal with a surrounding area of erythema. If no reaction is obtained by either test, serum therapy may be undertaken. If a mild reaction is present, preliminary desensitization should be carried out before serum is administered. If the reaction is severe it is probably wise not to attempt serum therapy even after desensitization.

Group I serum concentrated is commercially supplied in packages of ten to twenty thousand units, conveniently arranged for intravenous injection. The first dose of ten thousand units should be diluted with nine volumes of normal saline for convenience of slow administration. Ten minutes should be consumed in giving the first dose of ten thousand units. The second dose of twenty thousand units may be given in two hours, and subsequent doses of twenty thousand units every four hours thereafter. Care should be taken in each instance to avoid giving the serum too rapidly. It is important to continue the serum on an uninterrupted four-hour schedule. The total amount of serum required will vary with the individual case, depending upon the severity of the infection, condition of the patient, the elapse of time from onset, and the presence or absence of the organism in the blood stream. If there is no untoward reaction to the serum it should be continued until there is definite clinical evidence of a favorable response.

OXYGEN THERAPY. Oxygen therapy in pneumonia had its inception in the experimental work of Haldane and Meltzer in 1917. During the next ten years its use was largely on an experimental basis or confined to certain large institutions where oxygen chambers were available. During the past decade, due to the introduction of various types of well constructed oxygen bed tents, it has been possible to supply oxygen in proper concentration to a large number of patients. Despite this fact, there is still considerable difference of opinion among clinicians as to its value.

A review of text-books and current literature on the treatment of pneumonia indicates that customarily oxygen therapy is instituted only on the appearance of a rather severe degree of cyanosis. Howard[6] discusses oxygen therapy under the heading of relief of cyanosis. Cole[7] states that he uses the degree of cyanosis as the indicator for oxygen. As a result of this tendency, oxygen therapy to a large extent has been reserved for extremely ill or almost moribund patients.

Painton and Ulrich[8] report the therapeutic administration of oxygen to one hundred and forty-nine

pneumonia patients with a mortality of sixty per cent. This is comparable to our observation in the two general hospitals in Norfolk. Of sixty-five pneumonia patients receiving oxygen, on which records were kept, forty-eight died, or a mortality of 73.8 per cent. These figures, of course, point clearly to the fact that oxygen is being used almost exclusively on already moribund cases. Early and adequate use of oxygen is the exception rather than the rule.

McLeod[9] emphasizes the importance of early administration of oxygen in pneumonia. He states, "The damage of oxygen deficiency on the nerve centers and the tissues usually develops insidiously, and that once started the damage must lead to a progressive deterioration of the vital functions of the body." It would seem rational, therefore, if any benefit is to be expected from oxygen therapy, to undertake it early and to continue it in an adequate way throughout the course of the disease. Only in this way can a proper clinical evaluation of this method of treatment be made.

Our experience at the U. S. Public Health Service Hospital in Norfolk[10] confirms this view. For a period of more than five years at this hospital all cases of pneumonia have been placed in oxygen tents as soon as diagnosis was made. There has been a marked reduction in mortality, amounting to more than forty per cent, over a five-year period, as compared to the previous five years without oxygen.

Oxygen, of course, does not shorten the course of the disease, but it does serve in many instances to maintain the patient's resistance and keep him alive until immunity is established.. Oxygen can most conveniently be administered by means of a properly constructed bed tent. The rate of flow should be sufficient to maintain a concentration of approximately forty per cent. It does not seem necessary to complicate the apparatus by any device for removing the expired CO_2. In the absence of an oxygen tent, oxygen can be supplied in a good concentration by means of a double nasal catheter, connected to a reducing valve on the oxygen tank.

Oxygen therapy will, of course, be ineffective in the far advanced cases, where prolonged anoxemia and toxicity have injured the vital centers beyond repair. Instituted early as a supportive measure it provides definite assistance in prolonging the patient's life past the critical point of the disease.

ARTIFICIAL PNEUMOTHORAX. The report of Lieberman and Leopold[11] and of Blake[12] and his associates served to revive interest in the therapeutic possibilities of artificial pneumothorax in the treatment of lobar pneumonia. Since the appearance of these papers there have been numerous other contributions to the subject and a considerable number of cases have been subjected to this treatment. In spite of apparently favorable results in certain instances, this form of therapy is still on an experimental basis.

Blake reports twenty-two cases, all of whom recovered except three that were associated with late septicaemia. The patients without pleural adhesions obtained the greatest benefit and he has stressed the importance of this point in the selection of cases. Lieberman and Leopold[11] collected fifty cases from the literature, of whom all but three recovered. Many of their cases received pneumothorax late in course of the disease.

Abernathy, Horsfall and MacLeod[13], on the basis of a careful study of nine cases, were unable to find evidence of strikingly beneficial results. Six of their cases were treated by massive compression, while the remaining three received small amounts of air along with specific serum therapy.

Various writers have emphasized the restriction necessary in the selection of cases for the procedure. It is generally agreed that only comparatively young adults free from cardiovascular disease should be selected. Those having pre-existing pleural adhesions, bilateral involvement, or asthmatic tendency, are also excluded. In view of these restrictions, the technical difficulties of the procedure and the not inconsiderable risk involved, the method does not seem practical except on an experimental basis.

CONCLUSION.

1. The early use of specific serum in certain types of pneumonia is fully established as a most effective treatment of pneumonia of those particular groups.

2. Oxygen therapy instituted early and carried out adequately during the course of the disease is an effectual supportive measure.

3. Artificial pneumothorax is an experimental procedure and has not yet been established as of clinical value.

BIBLIOGRAPHY

1. Dochey, A. R., and Gillespie, L. J.: *Jour. Amer. Med. Assoc.*, 61:727, 1913.
2. Cole, Rufus: Trans. Asso. Amer. Physicians, 30:230, 1915. *Arch. Int. Med.*, 14:56, 1914.

XUM

3. Felton, L. D.: *Boston Med. and Surg. Jour.*, 190:819, 1924.
4. Cecil, Russell L.: *Jour. Amer. Med. Assoc.*, 108:689, February 27, 1937.
5. Abernathy, T. J.: *N. Y. State Jour. Med.*, 36:627, April 15, 1936.
6. Howard, C. P.: Oxford Monograph, Vol. 10:213.
7. Cole, Rufus: *Ann. Int. Med.*, Vol. 10:1, July, 1936.
8. Painton, Frederick J., and Ulrich, Herbert J.: *Ann. Int. Med.*, Vol. 10:1345, March, 1937.
9. McLeod, J. J. R.: Physiology in Medicine, 415, 1935.
10. Faget, G. H., and Martin, W. B.: Unpublished data.
11. Lieberman, L. M., and Leopold, S. S.: *Amer. Jour. Med. Sc.*, 186:315, 1934.
12. Blake, F. G., Howard, Marion, and Hull, W. S.: Trans. Assoc. Amer. Phys., 49:119, 1934.
13. Abernathy, Theodore J., Horsfall, Frank L., and MacLeod, Colin M.: Bul. Johns Hopkins Hosp., Vol. 58-35, January, 1936.

339 Boush Street.

THE MORTALITY OF LOBAR PNEUMONIA IN PIEDMONT VIRGINIA: AN ANALYSIS OF 310 ADULT CASES.*

STAIGE D. BLACKFORD, B.S., M.D.,
University, Va.

The Medical Society of Virginia is at present investigating the pneumonia problem in the State. Due to the lack of published data on lobar pneumonia in this region, it seems worth while to bring to date a series of 100 adult cases of the disease reported from the University of Virginia Hospital in 1930[1]. This original group can now be supplemented by 210 subsequent records and the present brief report analyzes these 310 cases with especial reference to factors affecting mortality.

Selection of Cases: Records were included in this study only when the patient was more than eleven years old, when there was definite physical or roentgen evidence of pulmonary consolidation, and when lobar pneumonia rather than its complications was the primary cause of hospitalization. Cases with senile, terminal, post-operative or other bronchial types of pneumonia were excluded and it should be remarked parenthetically that the mortality in this secondary group would have been much higher than in the series analyzed.

The 310 records suitable for this study were found in approximately 80,000 hospital admissions from 1922 to 1937. Only two patients of this entire group received any form of serum treatment; both of these had blood cultures positive for pneumococcus Type I and one survived after antipneumococcus Type I serum.

Factors Affecting Mortality: The effect of certain factors on the mortality rate is presented in Table I:

TABLE I
MORTALITY WITH REFERENCE TO

	No. of Cases	Deaths	Mortality per cent
A. AGE			
Twelve to twenty-nine	176	16	9.1
Thirty to forty-nine	77	19	24.7
Fifty and above	57	23	40.3
B. SEX			
Males	206	33	16.0
Females	104	25	24.0
C. RACE			
White	224	41	18.3
Colored	86	17	19.7
D. ECONOMIC STATUS			
Public Ward	232	46	19.8
Private Room	78	12	15.4
E. SEASON			
Winter	135	29	21.5
Spring	114	21	18.4
Fall	43	6	13.9
Summer	18	2	11.1
F. DURATION BEFORE ADMISSION			
Less than four days	204	22	10.8
Four days or more	94	32	34.1
Undetermined	12	4	33.3
G. SPUTUM TYPING			
Pneumococcus Group IV	105	16	15.2
Pneumococcus Type I	56	10	17.9
Pneumococcus Type III	25	4	16.0
Pneumococcus Type II	19	5	26.3
Hemolytic Streptococcus	6	2	33.3
Pneumococci Types II and III	3	0	0.0
Friedlander's Bacillus	1	1	100.0
Not Typed	95	20	21.0
H. BLOOD CULTURE			
Negative blood culture	129	16	12.4
Hemolytic Streptococcus	8	4	50.0
Pneumococcus Type I	7	2	28.5
Pneumococcus Type II	6	4	66.6

*From the Department of Internal Medicine, University of Virginia Hospital.

1. Blackford, S. D.: Primary Pneumonia in Virginia: An Analysis of 100 Adult Cases, *Va. Med. Monthly*, November, 1930.

Pneumococcus Group IV	5	5	100.0
Pneumococcus Type III	1	0	0.0
Pneumococci Types II and III	1	0	0.0
No blood culture	153	27	17.6
I. MAX. WHITE BLOOD COUNT			
Over 20,000	169	28	16.5
10,000 to 20,000	95	21	22.1
Under 10,000	26	9	34.6
No white blood count	20	0	0.0

DISCUSSION

It is well recognized that this series of cases is so small that it justifies no conclusions; however, from the data available it appears that advancing years, a positive blood culture, and a poor leukocytic response exert an unfavorable influence on the prognosis of lobar pneumonia. The apparent increased mortality rate from delayed hospitalization in this series is probably in part due to the fact that patients hospitalized after the fourth day are usually those whose progress at home is not satisfactory. The sex, race, economic status of the patient, and the season of the infection has no obvious effect on the outcome.

Of the 208 sputa positive for pneumococci more than half were reported "Group IV," which locally has not been subdivided into types until recently. The mortality rates from Types I, III, and Group IV pneumococci did not differ appreciably, and the apparently high mortality of Type II infections may be attributable to the relatively few cases.

As might be expected, more than half of the patients with positive blood cultures died. It is of some interest that only 2 of 7 patients with proven pneumococcus Type I septicemia died, whereas 9 of the other 13 cases of pneumococcus septicemia terminated fatally.

SUMMARY

An analysis of 310 adult cases of lobar pneumonia at the University of Virginia Hospital reveals that age, a positive blood culture, and a poor leukocytic response apparently affect the prognosis adversely. The effect on the mortality rate of the other factors studied is not definite. Pneumococcus Group IV infections are locally more frequent than the first 3 types of pneumococci combined, but there seems to be little, if any, relationship between the mortality and the type of pneumococcus.

THE PROBLEM OF NON-UNION IN FRACTURE OF THE NECK OF THE FEMUR.

PAUL C. COLONNA, M. D.,
Clinical Professor Orthopedic Surgery, New York University College of Medicine, New York, N. Y.

In spite of an intense, widespread interest in fracture of the neck of the femur, there still remain an unfortunately large proportion of cases in which necrosis of the head and absorption of the neck occur. The location of this type of fracture makes it a unique one in considering the problem of reduction and splintage.

Many years ago Sir Astley Cooper stated that he had observed only one transverse fracture of the femoral neck which healed by bony union, and a review of our present literature on the statistical study of this subject shows that in the hands of most surgeons and under the best of conditions about one out of every four transcervical fractures of the neck of the femur fails to unite by bony union.

The factors of adequate reduction and sufficient immobilization cannot be overstressed in the care of this type of fracture. Whether immobilization is obtained by internal fixation through use of wire, pins, bone peg or flanged nail, or whether immobilization is attempted by the use of the Whitman abduction method, the close coaptation of the fractured surfaces without the harmful effect of weight bearing must be continued for a long period of time. Until lateral and antero-posterior views can demonstrate definite bony trabeculae traversing the line of fracture, it is unwise to assume bony union.

Another factor is the time interval which frequently elapses before the reduction is accomplished. All other factors being equal a fracture of the hip reduced within a few hours will heal more satisfactorily than if allowed to wait for a few days or weeks while the "swelling subsides." The careful observance of this factor is all too often disregarded in reporting end-results on fracture of the neck of the femur. In fractures of the long bones, this time

interval before reduction is obtained is recognized to be of great practical importance and certainly it should be accorded recognition in any statistical study of fractures of the femoral neck. The old dictum of "splint them where they lie" cannot be overstressed. The Fracture Committees of the American College of Surgeons have stimulated interest in this immediate treatment and insist upon hip and arm splints as necessary equipment in ambulance services throughout the country. These splints many times prevent unnecessary malposition and facilitate early reduction.

The location and type of fracture of the neck of the femur is of great aid in determining the prognosis. In a general way the nearer the fracture approaches the head of the femur, the poorer the prognosis for bony union; and as has recently been pointed out, the percentage of non-union is very high in those cases presenting an oblique fracture of the neck or presenting any comminution of the head or neck. Speed (J. S.) states that non-union can be regularly expected in cases complicated by comminution of the head.

The interposition of capsular tissue must often be a contributing factor in the cases of non-union which were originally reduced by closed manipulation. In this connection it should be stated that the Leadbetter maneuver of lifting the flexed thigh upward, and then extending the thigh, confirming the reduction by the so-called "palm-heel" test, is an improvement over the usual Whitman maneuver of reduction.

In considering the blood supply of the joint one may say that while the main blood supply of the femoral head and neck in the adult ordinarily comes from the branches of the capsular arteries, there is some evidence to believe that interference with the circulation through the ligamentum teres is a definite factor in the occurrence of necrosis of the head and absorption of the neck. The patency of the blood vessels in the ligamentum teres during adult life has been reported a number of times and this medium must be an active one in nourishing those loose heads that continue to show X-ray evidence of being wholly or partly alive. One may occasionally have roentgen evidence of the head undergoing total necrosis and at a later date evidence of secondary revascularization of varying degree which appears to begin usually in the region of the fovea. If we accept, as has been suggested by Santos and Phemister, the roentgen appearance of the increased density of the head fragment as evidence of necrosis, this may frequently be noted. Conversely, decalcification of the head is evidence suggestive of vascularity of the head. However, it is well to remember that non-union occurs in the face of roentgen evidence of either increased density or rarefaction, though it would appear to be more likely in the presence of increased density of the head fragment. The beautiful injection specimens of Wolcott show many variations in the normal circulation of the femoral head. He feels that the value of preserving this structure should be recognized in any method advocated for treating this type of fracture. In all complete fractures of the femoral neck some of the blood vessels in the capsule must also be severed or torn and the injury to these blood vessels may be a very real factor in the development of non-union.

The age group in which the patient falls is of importance; for, while fracture of the neck of the femur in children occurs more frequently than is generally recognized, the question of non-union in the young is rarely a problem. It is the elderly case, presenting evidence of general debility or senility, that presents the greatest problem. The observation that a person is "as old as his arteries" is, however, a very much more important factor in this type of fracture than the chronological age of the patient.

It is also conceivable that the degree of original trauma which initiates the fracture may be of more importance in the development of non-union than is generally recognized.

Metabolic and blood chemistry studies to date may be briefly dismissed by saying that they have proven of little practical value in dealing with this problem of non-union in fractures.

TREATMENT

With the improvement in surgical technique and methods of anaesthesia, many poor surgical risks have been safely able to undergo an open operation in which the exact anatomical reposition has been obtained and retained by pin, wire or graft. It takes time to accumulate a large series of end-results treated in these ways and make a fair comparison and evaluation of the open *vs* closed methods of reduction or type of open operation acceptable for the individual case.

Many factors may, therefore, be responsible for the poor results in the fresh case.

In the old case, however, with frank non-union often accompanied by neck absorption and head necrosis, any attempt at pegging either by bone or metal is likely to result in failure. There are occasional cases of old, delayed union in fracture of the neck of the femur which have united by bony union after operation but many of the cases in this severe class present X-ray evidence of necrosis of the head and this alone greatly lessens the chance of being able to preserve and revitalize the head fragment by any method of treatment.

With the advanced type of non-union there is present a severe degree of disability. Many cases are unable to walk at all and are committed to life in a wheel-chair or bed. If able to walk, it is usually necessary to use crutches. Attempted movement and weight bearing cause a considerable amount of pain. The limb is insecure, due to the neck absorption, and becomes shortened by the upward riding of the greater trochanter against the ilium, usually assuming the characteristic attitude of flexion and adduction.

With the intention of reconstructing these unstable and painful hips, we have been doing for the past five years a type of operation which has proven satisfactory. This consists, in brief, of severing the muscles attached to the greater trochanter region, removing the head, and placing the upper extremity of the femur deep within the acetabulum. The abductor muscles are then sutured by bony attachment to the shaft of the femur. To date fifteen cases have personally been operated upon.

Fig. 1.

Pre-operative X-ray of Case 1, showing almost complete absorption of the neck with coxa vara deformity. The density of the head fragment would indicate partial necrosis of the bone. There was no evidence of bony union noted at operation.

Fig. 2.

Post-operative X-ray of Case 1, taken over a year after the reconstruction operation herein described was performed. The hip is stable and has an excellent range of voluntary motion. Note the rounding off of the upper extremity that has occurred with time and the formation of apparently a true joint space.

Following are the histories of two typical cases of old ununited fracture of the neck of the femur in which this type of reconstruction operation was done.

Case History.

Mrs. J. G., age 45, was admitted to Bellevue Hospital on July 2, 1934. About a year previously this patient had slipped and fallen on her right hip. She had been adequately treated

in an abduction plaster spica for the following six months but in spite of this, non-union had occurred.

On her admission to Bellevue Hospital she walked with the aid of crutches and was wearing a Thomas splint. She complained of severe pain on any movement, even that of turning in bed.

Examination of the hip showed that movement in all directions was painful and limited and that the limb was in a position of marked outward rotation. There was marked telescoping with an inch shortening. Appearance of the X-ray is shown in Figure I.

On July 25, 1934, the type of reconstruction operation under discussion was done. There was frank non-union with fibrous tissue covering both fragments and almost complete absorption of the neck of the femur. The plaster was bivalved after four weeks and overhead suspension of the limb begun, using active and passive movement. Two weeks later, the patient was gotten out of bed without support and was encouraged to walk with crutches. She was discharged from the hospital eight weeks post-operatively, walking with a cane and at present has returned to her housework and is very active. She has a range of movement from 180 degrees to 90 degrees with a wide range of abduction and free rotation. There has been a gain of one-half inch in the length of the extremity following this type of reconstruction operation. Figure II shows the present X-ray appearance of the reconstructed hip.

Case History.

Mrs. J. L., age 69, admitted to Bellevue Hospital on June 4, 1934, complaining of severe pain in the left hip and being unable to walk at all.

In January, 1933, she fractured the left hip in an automobile accident and after about eight weeks in plaster at another hospital, movement of the hip was begun and she was permitted to sit in a wheel-chair. Frank non-union of the neck of the femur resulted and when she was admitted, she was completely disabled. She spent her time in a wheel-chair, not being able to walk since the accident of a year and a half.

Examination showed an elderly woman lying in bed, presenting adduction deformity and two

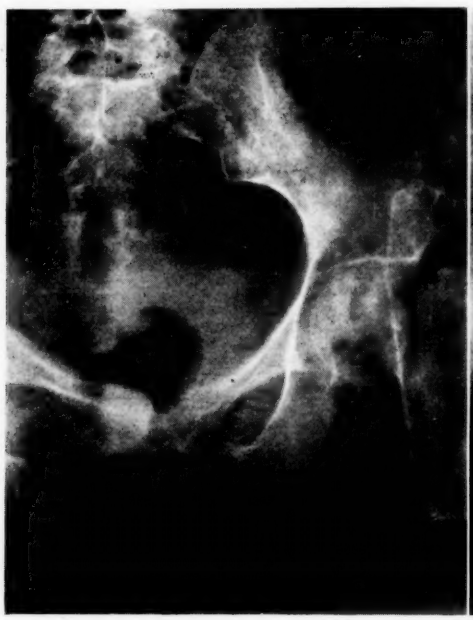

Fig. 3.

Pre-operative X-ray of Case 2, a woman aged sixty-nine, showing old ununited fracture with marked upward riding of the shaft. Note the extreme atrophy of the bone due to the patient being practically completely disabled for over a year and a half.

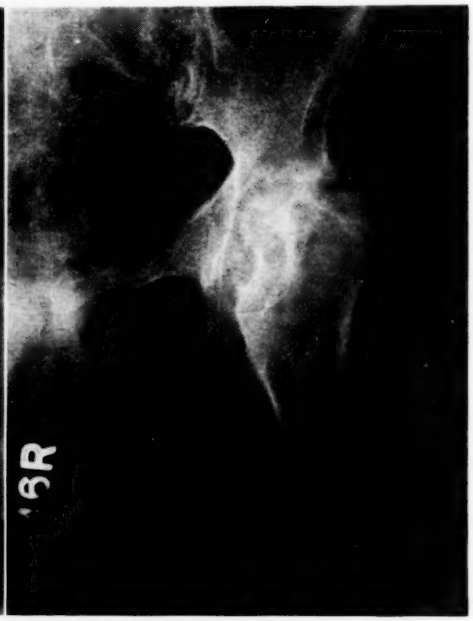

Fig. 4.

Post-operative X-ray of Case 2, taken over a year after the reconstruction operation. Note the change in the bony structure following weight bearing. Patient doing own housework and presenting good range of movement in all directions.

and one-half inches shortening. Appearance of the X-ray is shown in Figure III. On account of the marked upward riding of the greater trochanter, a period of preliminary traction was employed and on August 27, 1934, the patient was operated upon, using the type of reconstruction operation described.

Post-operative X-ray, taken a year later, is shown in Figure IV. When discharged from the hospital the patient was walking with the aid of crutches and presented at that time a stable, painless hip with about 60 degrees flexion from full extension, and a good range of abduction.

Since discharge she has returned to her housework and at present is quite active walking upstairs easily and not using a crutch or cane. Movements are from 180 degrees to 90 degrees and a wide range of abduction. There is at present only one-half inch shortening instead of the preoperative two and one-half inches.

SUMMARY

1. Some of the important factors which give rise to non-union in fractures of the neck of the femur are reviewed.

2. A type of reconstruction operation particularly useful for old ununited fracture of the neck of the femur is described and two cases treated by this operation are presented.

BIBLIOGRAPHY

Axhausen, G.: Necrosis of the Proximal Fragment in Fracture of the Neck of the Femur and Its Influence on the Hip Joint. *Arch. f. Klin. Chir.*, 1922, 120: 325.

Colonna, P. C.: Fracture of the Neck of the Femur in Children. *American Journal of Surgery*, 1922, 6: 793-797.

Colonna, P. C.: The Whitman Reconstruction Operation. *Annals of Surgery*, 1926, 84: 897-1901.

Whitman, Royal: Orthopedic Surgery. Ninth Edition, 1930. Lea & Febiger, Philadelphia.

Santos, Jose V.: Changes in the Head of the Femur After Complete Intracapsular Fracture of the Neck. *Archives of Surgery*, 1930, 21: 470.

Smith-Petersen, M. N., Cave, E. F., and Van Gorder, G. W.: Treatment by Internal Fixation. *Archives of Surgery*, 1931, 23: 715.

Leadbetter G. W.: A Treatment for Fracture of the Neck of the Femur. *Journal of Bone and Joint Surgery*, 1933, 15: 931-940.

Wolcott, W. E.: Circulation of the Head and Neck of the Femur. *Journal of A. M. A.*, 1933, 100: 27.

Phemister, D. B.: Fracture of the Neck of the Femur, Etc. *Surgery, Gynecology and Obstetrics*, 1934, 59: 415.

Murray, C. R.: Healing of Fractures. *Archives of Surgery*, 1934, 29: 446-464.

Böhler, Lorenz: The Treatment of Fracture. Fourth Edition, 1935. John Wright & Sons, Ltd.

Speed, K.: The Unsolved Fracture. *Surgery, Gynecology and Obstetrics*, 1935, 60: 341-352.

Cooper, Sir Astley: Quoted from Kellogg Speed.

Colonna, P. C.: A New Type of Reconstruction Operation for Old Ununited Fracture of the Neck of the Femur. *Journal of Bone and Joint Surgery*, 1935, 17: 110-122.

Speed, J. S.: Central Fracture of the Neck of the Femur. *Journal of the A. M. A.*, 1935, 104: 2059-2063.

Magnuson, P. B.: Fracture of the Neck of the Femur. *Journal of the A. M. A.*, 1936, 107: 18, 1439-1445.

59 East Fifty-fourth Street.

THE TREATMENT OF ARTHRITIS.*

JOHN R. HAMILTON, M. D., F. A. C. P.,
Nassawadox, Va.

The discussion will be limited to chronic atrophic arthritis, which is also called infectious, proliferative and rheumatoid arthritis, and to chronic hypertrophic arthritis, also known as senescent, degenerative and osteo-arthritis. These are the two great forms of "chronic arthritis" which Osgood calls the most generally prevalent and most inadequately treated controllable chronic disease.[1]

In review, some of the essential differences of these two conditions will be briefly stated, as given by a subcommittee of the American Committee for the Control of Rheumatism.[2] "Chronic atrophic arthritis: usual age of onset is between the ages of twenty and forty; it involves many joints, small as well as large. If of consequence, it is generally associated with loss of weight and appetite, secondary anemia, atrophy of the skin, muscles and bones, lowered blood pressure and skin temperature and other symptoms of vasomotor instability, exhaustion and tachycardia—even without fever. Its

*Read before the Seaboard Medical Association of Virginia and North Carolina in Tarboro, N. C., December 3, 1936.

course may be short and leave little or no significant residual disability. On the other hand, it often tends to be progressively destructive, and in uncontrolled cases often ends in ankylosis. Chronic hypertrophic arthritis, on the other hand, rarely appears symptomatically before the age of forty. It tends to involve a few favorite joints, such as the lower cervical and lower lumbar spine, terminal and sometimes middle phalangeal joints, knees, and less frequently a hip or shoulder. Its course may demonstrate little progression; if so, the progression is slow and the disability it produces fairly moderate. It is not associated with a related loss of appetite and weight, anemia, tachycardia, hypotension or marked alterations in skin temperature, although it is usually associated with some fatigue."

From the above it is evident that each of these two diseases is a complicated whole made up of elements which may vary to such an extent as to present a different picture each time. At the same time, each patient suffering from one of these diseases introduces a case with distinct features governed by such things as the heredity, environment and occupation of the patient and his individual resistance. When all of these factors are assembled and the possible permutations calculated, one must comprehend that there is no definite routine treatment for hypertrophic or atrophic arthritis in general but each time treatment must be applied to an individual case.

In a case of either disease when beginning treatment, the first step is to ascertain every way in which the patient varies from his normal in addition to his symptoms of arthritis. These deviations must be tabulated and examined carefully, for the correction of these extraneous disorders may be as essential to ultimate success as any procedure aimed directly at the arthritis. Each patient must be studied as a whole. From the data of the history, the physical examination and the laboratory work these accompanying variations may be listed and their correction may be started while a more detailed study of the patient is being carried out and a direct attack upon the arthritis is planned. This direct attack must follow two lines: one, the removal, at the correct time, of the cause or causes of the arthritis if it can be located; and, two, the treatment of the arthritis that has already developed.

In instigating the first step in treatment, dealing with the patient's variations from normal, they may be found to be closely interwoven with the treatment as a whole, but they should be given sufficient attention. The patient's weight should be compared to the average person's weight and his own standard. A patient with chronic atrophic arthritis who has lost weight must regain his lost ground. With this loss of weight the physician is often confronted by an anorexia. This is frequently fostered by a deep-seated conviction of the patient that certain foods should be eliminated from his diet, until he is left with a definitely deficient diet. In such cases, give a sincere and forceful explanation of the large number of food elements required by the body, best obtained by a general diet, including as near as possible all types of foods. When such a patient is convinced and will yield the problem of diet to his physician, a great step forward is made. I have found vitamin B, small doses of sodium cacodylate, intramuscular liver injections, and, at times, a bitter tonic helpful in overcoming anorexia.

In every case the patient should be impressed by the necessity of a general diet. A great drawback is that many arthritic patients must have teeth extracted during their treatment. These patients cannot be expected to gain weight, enjoy eating, or properly digest food if they are forced to exist on liquids and very soft foods or firm foods cut in small pieces to be swallowed whole. The important process of thorough mastication cannot be ignored. A well-balanced meal, each item passed through a food chopper, and the whole attractively arranged on a plate, is inviting and the patient is able to masticate such food until it is thoroughly mixed with saliva and is in better condition to be passed on to the stomach. Such a procedure is not expensive and it is not too time-consuming for the house-wife. A gastric analysis is indicated in many of these cases, and corrections should be made in accordance with the findings. The motility of the stomach is also disordered at times and needs corrective measures.

In dealing with chronic hypertrophic arthritis, over-weight is frequently encountered, and then it is just as important to effect a reduction in weight. As has been previously stated, generalization is not possible, but in many cases I found the Nissler-Gorden moderately-low-starch diet with dextrose and with exercise, as indicated, gave adequate weight

reduction. In certain cases of each type of arthritis sharply limiting carbohydrates in the diet gave relief of symptoms, but I believe that this cannot be accepted as a general measure.

Constipation is prevalent in patients with both types of arthritis and should be combated by the usual methods. Secondary anemia, often found in patients with atrophic arthritis, must be treated, when present, with adequate doses of iron. This only suggests a few of the details in the treatment of the extraneous disorders but I hope it has indicated the importance of treating the whole patient along with his arthritis.

When beginning the direct attack against the arthritis, dealing with focal infections still plays an important part. It is true that any proven focus of infection should be removed for general hygienic reasons alone, provided this can be done without harmful effect to the patient. But both physician and patient want a more pertinent question answered: "Will the removal of a certain focus also help relieve the condition from which the patient is suffering"?

In cases of chronic atrophic arthritis a focus of infection is often the cause of the arthritis. I believe that radicalism within the limits of common sense in removing foci of infection in chronic atrophic arthritis is often the rational course; but by removing a focus in the event of this disease, we can hope to accomplish only one thing,—to remove the cause. It does not take care of the condition which has already developed. If this is remembered, it will give a clearer view of the place of the removal of foci in the treatment of chronic atrophic arthritis. The results to be expected may be compared as follows: If I discover in my home a fire caused by a defective oil stove, the first thing to do, if it can be done with reasonable safety, is to remove the stove and its supply tank out into the yard, being careful not to spill oil if possible on the way out. Having accomplished this, I would hurry back and extinguish any fire that had spread to the room, not stopping until every spark was extinct.

The part this step plays in the entire course of the treatment and the results which may be expected from this one corrective measure will vary. In one case of chronic atrophic arthritis the cause may be found, the blind abscess of a single tooth. This may be removed, no follow-up treatment carried out, yet the patient makes a complete recovery. In such a case the disease has not gained a definite hold and after the removal of the cause, the rest of the disease is killed by the body's own agents. This is the ideal situation but it cannot be expected too often by patients and doctors.

In another case of atrophic arthritis, the cause may be found again a single blind abscessed tooth; the tooth is extracted, and the patient has a severe flare-up of his disease. The reason for this result is evident. To go back to the illustrative fire, as when oil is spilled while the stove is being removed, so the acute arthritic situation which arises calls for independent measures in combat. In lesser degrees this outcome is accepted favorably by the attending physician. But I hasten to describe a procedure which is becoming rare. Suppose six teeth are found to have blind abscesses and they are all extracted at one sitting. What happens? Nothing more than an acute flare-up may follow. But, to return to my homely example, in the hurry, such a spill of oil may be fed to the fire that total destruction may occur, or, even if the added flames are extinguished, a great deal more damage is found than would have occurred had the additional oil not been furnished the fire.

In still another case we may see a patient who has a tooth with a blind abscess or one of the many other foci of infection. It is removed. There is a lull in his symptoms and then they return and continue as usual. Why? Because the condition initiated by the focus has developed to such an extent that it is only slowed by the removal of the "oil." Hence the necessity for remembering the further measures of the direct attack which make the treatment complete.

There is still the case where the careful and judicious removal of the foci of infection causes no change in the picture because the "fire" has reached such proportions that the removal of the "oil stove" has no effect, and further measures of the direct attack must be used before any relief can be obtained.

After the removal of foci of infection, improvement may occur at any time varying from weeks to months. Often before the results are evident some other procedure has been started which reaps the entire glory for the improvement when the re-

XUM

moval of the focus was at least the opening wedge in separating the patient from his disease.

The correct time at which to remove a focus of infection requires a separate decision in each case. Also, because one focus is found, too often the search is not continued and other foci are left so that the disease continues to develop and the patient suffers.

In hypertrophic arthritis after the removal of foci of infection, I have seen only the general improvement in bodily health which one would expect from the removal of a toxic agent in any case. In this disease it is my feeling that foci of infection should be removed for general hygienic reasons. I consider this more as an extraneous disorder accompanying the arthritis.

At present there is evident much confusion concerning the use of germ products in the treatment of atrophic arthritis, and this confusion will continue until much more work and observation are carried out. Germs prepared in different ways have been recommended, vaccines, antigens, and immunogens; and the source varying from autogenous to special stock strains or unrelated germs such as typhoid. Administration has been variously advised as intradermally, subcutaneously, intravenously, and intramuscularly; the reaction aimed for from none to a marked general one. The basis for their use has varied from the results of agglutinations tests to the broadest general indications.

In atrophic arthritis, if the focus has been removed and the disease continues active, or, as a reinforcement, one of the above-mentioned products chosen either from an autogenous source or stock arthritic strain, administered intramuscularly or subcutaneously, will do much to build up the resistance of the body in overcoming the infection. It is my feeling that best results are obtained from small doses, which gives no general reaction. In very chronic cases where signs of activity persist, a stock arthritic streptococcus immunogen has been given in small doses intravenously, with five grains of acetylsalicylic acid given before and after its administration, and the results have been gratifying.

Neither broadside condemnation or unquestioned acceptance of these products is warranted, but if they are chosen at the proper time as the individual case justifies, they are useful in helping the body overcome the offending organism. Typhoid vaccine has been used intravenously and some splendid results have been reported. My experience is so limited with this type of therapy that it does not justify an opinion.

In hypertrophic arthritis, germ products have shown no marked beneficial results.

Foreign protein therapy has its advocates. In early atrophic arthritis where no foci could be located and the white count and poly. count were low, I have seen foreign protein stimulation return the white blood picture to normal and at the same time the arthritic process showed improvement and apparent cessation.

Intramuscular and intravenous colloidal sulphur have been used a great deal in recent years. Work in standardizing the different products is necessary and more investigation to determine just how this agent affects the body is needed. One hypothesis at present is that the metabolic upset following the attack by the cause of the arthritis calls for added sulphur. Time only will bring to light the correct theory of its action. I have used intramuscular sulphur (sulfur-diasporal) since 1933. No toxic effects have been seen. The dose has been gradually increased until now the usual procedure is to give one 2 c.c. ampule containing twenty-five milligrams of sulphur three times a week for a total of twenty injections. In chronic atrophic arthritis improvement has occurred consistently enough to cause me to be favorably impressed by the use of this drug as a follow-up measure after the removal of the cause of the disease, or as a measure to help get the patient in condition to have foci of infection removed, or in those cases where no foci can be located.

The correct usage of oral medication is by no means a settled question. I do not hesitate to administer salicylates in their various forms for pain. This makes the patient more comfortable and decreases the muscle spasm. I have at times a conviction, totally unproved, that salicylates have a definitely harmful effect on streptococci. Iodides in more chronic cases are at times beneficial. Oxoate-B deserves further investigation and clinical observation.

Physical therapy, an often neglected form of treatment, is essential for complete restoration of most cases of both atrophic and hypertrophic arthritis. It is often neglected because of a misconception that this involves equipment which is not at

hand. This subject cannot even be touched upon in the time limit allowed, so I would recommend the recent edition of the "Handbook of Physical Therapy," published by the American Medical Association, to those who have not already read it. Of course, physical therapy must be used in its correct form and at the correct time.

Another vital field of therapy that unfortunately must be passed over with only a few words of praise for the part it plays in the management of arthritis and the restoration of the deformed is orthopedics. It has an important place in helping prevent the various deformities or in correcting them once they have occurred.

It is well to have one's patients clearly understand the time necessary for treatment. This is particularly true in atrophic arthritis. They must understand that this is a chronic disease and time units must be in months and years. If they understand this before actual treatment is begun, it will prevent to a great extent the restlessness, worry and anxiety that often occurs. It is my personal belief that once a patient and physician unite in a partnership to combat atrophic arthritis, regardless of apparent or symptomatic results, this partnership should continue for at least one year; then, if this partnership is showing satisfactory results, it should continue actively for two more years, becoming then a guiding agency.

In dealing with such a subject as atrophic and hypertrophic arthritis within a short time limit, only portions of the surface can be scratched. Many phases must be treated lightly or not be touched upon at all. The purpose of this paper has been to bring again to mind the treatment of these two important conditions and to try to help reduce the residual pessimism which has accumulated with time and the disease in the minds of many physicians. When we accept the responsibility of stewardship of these patients, we can do so whole-heartedly. Even by only accepting the more conservative estimates, such as that found in the Primer on Rheumatism,[3] we can expect satisfactory improvement in at least 70 per cent of our cases when the problem is seriously tackled and men with special ability are called in as needed.

BIBLIOGRAPHY

1. Osgood, R. B.: The Most Generally Prevalent, the Most Inadequately Treated, Controllable Chronic Disease, *Virginia Medical Monthly*, 1933, lix, 573-579.
2. Hench, P. S., Bauer, W., Fletcher, A. A., Ghrist, D., Hall, F., and White, P.: The Present Status of the Problem of "Rheumatism"; a Review of Recent American and English Literature on "Rheumatism" and Arthritis, part ii, Annals of Internal Medicine, 1935, viii, 1495-1555.
3. Primer on Rheumatism: Chronic Arthritis, 1934, American Medical Association, Chicago.

THE TREATMENT OF PULMONARY TUBERCULOSIS.*

DEAN B. COLE, M. D.,
and
WALTER L. NALLS, M. D.,
Richmond, Va.

According to a recent report of the American Medical Association, about six hundred thousand dollars of public funds are spent annually in Virginia for hospitalization and treatment of patients suffering with pulmonary tuberculosis. This is further confirmation of the fact that the tuberculosis problem is not yet satisfactorily solved. In view of this, our purpose in presenting this paper is to outline a program of control of pulmonary tuberculosis, utilizing present facilities and making these equally available to all patients in need of treatment. A coordinated program of tuberculosis control emphasizes the need in Virginia of:

1. More sanatorium beds made free and immediately available for indigent patients.

2. A state-wide collapse therapy program equally available for all patients in need of such treatment. In addition to pneumothorax, facilities should be provided for surgical treatment, such as phrenic nerve operations, pneumolyses and thoracoplasties, in all public institutions for the treatment of tuberculosis.

*Read at the sixty-seventh annual session of the Medical Society of Virginia in Staunton, October 13-15, 1936.

3. A state-wide follow-up program which will include provision for the continuance of pneumothorax of all marginal and indigent patients. Private physicians can and will equip themselves to give this treatment. Pay for treatment of indigent patients should come from tax revenue.

4. Tuberculosis education and scientific treatment can and should be combined. This can best be accomplished through a co-ordinated program, making a short sanatorium residence available to all patients through an accelerated turn-over.

The chief factors influencing the prognosis in tuberculosis are age, extent and nature of disease, economic status, and the character of the treatment. Experience convinces us that the economic problem is probably the greatest single factor influencing the treatment of tuberculosis. Aside from the many other advantages that money offers, we find that any patient who is assured of freedom from economic strain and financial worry responds more promptly and more certainly than a similar patient financially handicapped or unduly worried. Many of the hazards of tuberculosis are primarily social and secondarily medical.

Regardless of our belief, as to the relative importance of exogenous as opposed to endogenous reinfection in the propagation of tuberculosis, we are all agreed that poor living conditions and overcrowding are potent factors in the spread of the disease. Constant exposure to the myriads of tubercle bacilli, continually excreted by the advanced consumptive, endangers all who are intimately exposed, either to infection or to possible reinfection, and gives assurance of further propagation of the disease. We believe that the danger of infection and reinfection from casual contact with tuberculosis has been over-emphasized with the result that a frightened public has been more concerned with the temporary care of the afflicted than with a solution of the underlying problem.

In the control of tuberculosis, early diagnosis, in our opinion, has been over-emphasized, and early treatment under-emphasized. We often hasten the diagnosis and delay the treatment. Bates, in a follow-up study of the medical student patients and physician patients discharged from Trudeau Sanatorium, reports on 239 such patients. He states that among this group 25 per cent were classified as having minimal tuberculosis as compared with 21 per cent of the entire sanatorium population. When these figures are considered and we recognize that not more than 25 per cent of a select group are diagnosed early, we feel that in Virginia early diagnosis is not our major problem in tuberculosis control. Without minimizing the importance of early diagnosis, we are convinced that the treatment of the patient following diagnosis is the most important single factor in the control of tuberculosis. It is the duty of the attending physician to determine the treatment, and advise the patient concerning it. For this to be done intelligently the physician must consider the patient's finances, his family and other obligations, his occupation, and the possibility of the patient continuing or soon returning to work. We believe that the proper time to first consider rehabilitation is immediately after diagnosis is made. If all of the factors in this connection are given proper consideration, it will simplify the problem of determining whether the patient will have sanatorium care or home treatment, or, as is unfortunately too often the case, whether the patient will be permitted to continue without treatment until he is no longer able to work and his condition has become hopeless.

The sanatorium is still an important link in the treatment of pulmonary tuberculosis and we will continue to have need of sanatoria for the care of many patients. The sanatorium, however, is not the whole solution of the tuberculosis problem, and the sooner we recognize this and as physicians realize that, after all, the tuberculosis problem is our problem, the sooner and faster will we make further progress in the control of this disease. Approximately two-thirds of all patients receiving sanatorium treatment have reached the far advanced stage of tuberculosis before admission. About two thousand people die in Virginia each year with tuberculosis, and one-tenth of them die in sanatoria. Thus, it is obvious that of the great number of people having open contagious tuberculosis, only a few are in the sanatorium for more than a short time during the period of greatest infectiousness. Any patient who is excreting tubercle bacilli is a menace to himself and often to others. If the sanatorium is to fulfil its purpose as a public health measure, its first duty is to free the greatest number of patients of positive sputum in the shortest possible time. Hopeless or dying patients with open tuberculosis should, when possible, be isolated in the sanatorium and not sent out to infect others before dying, just for the sake of admitting other patients who might have a similar

experience. The purpose of a sanatorium should be to break the continuity of infection while treating a patient and through this promote tuberculosis control.

Any classification of the population with regard to the economic status usually considers three broad groups:

1. Those who for one reason or another may be considered financially independent;
2. The great middle class of moderate means; and
3. The marginal wage earner and indigent.

The treatment of patients in the first group is largely a medical problem as time and expense are of secondary importance. With these patients a short residence at a health resort is often desirable and even prolonged sanatorium treatment is not incompatible with economic rehabilitation. Home treatment with these individuals offers no great difficulty as rest, food, necessary isolation and special medical treatment can be made readily available. The danger of home infection is obviously minimal in this group.

Patients in the second group are usually prepared to finance a short illness, but it is frequently impossible for these patients to withstand the expense of prolonged illness, especially when combined with idleness and the additional expense of hospital or sanatorium residence. Consequently, these patients welcome collapse therapy or any other treatment which gives hope of shortening time of cure and period of convalescence.

The third group should be cared for by the state and local community since they suffer the dire results from financial hazards such as inadequate food, poor housing, over-crowding, and other factors which harbor and spread infection. The indigent patient, although a community responsibility, is the major obstacle encountered by the practicing physician in the control of tuberculosis. The fatalistic outlook of many of these patients, often shared by the attending physician, can only be remedied by more adequate facilities for care and treatment, once diagnosis has been made. For the relief of this condition we suggest that more of the present sanatorium beds be made free and immediately available for indigent patients, and that provision be made by the state or local community for the necessary follow-up and treatment of these patients after discharge from the sanatorium. In this group, we believe that collapse measures are even more imperative and that provision for carrying out any and all collapse measures should be made available in every tuberculous institution supported in full or in part by public funds. This would make possible shorter periods of sanatorium treatment with accelerated institutional turnover and would also make possible the re-admission of any patient on short notice solely upon the recommendation of the attending physician. Rest, both local and general, may be intelligently combined with food and fresh air and the triad of treatment may be completed.

Collapse therapy, in freeing the sputum of tubercle bacilli, becomes one of the most important public health measures by making safe patients who would otherwise be a menace to themselves and others. Accomplishing this, short sanatorium residence should be adequate for the necessary hygienic training in the education of the tuberculous patient.

Many of the marginal wage earners, though self-supporting when well, become indigent as the result of illness, and prompt utilization of collapse therapy will permit many of them to continue with or soon return to their occupations. After a short period of hospitalization, during which pneumothorax has been instituted, many of these can return home and continue the treatment under the direction of the family physician or, if he is not prepared to administer pneumothorax, may be referred to a nearby physician or hospital unit equipped for and offering this service.

In summary, we wish to emphasize that the patient of independent means may avail himself of the proper medical and hospital facilities for which there is ample provision. The patient of moderate means can finance in part or in full a short period of hospitalization, but he usually cannot withstand both prolonged unemployment and protracted hospitalization. Provision must be made by the community or state for the marginal or indigent group as they are unable to withstand either idleness or illness. It is impossible to estimate with any degree of accuracy what financial burden to the state, the program advocated would involve. It is the writers' belief that large savings would result from rapid turnover incident to prompt pneumothorax or other compression treatment. However, the financial aspects of the question are by no means the most important. It is our belief that a co-ordinated tuberculosis program in Virginia, embodying the sug-

XUM

gested features, will go far toward the solution of this expensive and depressing situation.

REFERENCE

Bates, Robert T.: *American Review of Tuberculosis.* 1935, XXXII, 161.

Professional Building.

DISCUSSION

DR. C. LYDON HARRELL, Norfolk: In opening the discussion I wish to differ with Dr. Cole slightly on two points and elaborate on others.

First, I do not deem it wise to recommend that physicians who have not had proper training and experience attempt to induce pneumothorax. It is most difficult at times for the best of us.

Secondly, I do not feel that we should be in too big a hurry to return gas cases to their jobs just because they have become sputum negative. We must not lose sight of the fact that *rest*—mental rest, body rest and organic rest—is still the prime factor in treating tuberculosis and is so recognized by our most eminent authorities. There are other things to be taken into consideration besides a negative sputum,—the patient's general condition, how he feels at rest and after exercise, pulse and temperature, etc. To permit them to return to work too soon will be practicing false economy.

Those of us who do a great deal of chest work feel that in many instances, patients remain in Sanatoria too long, and that the turnover should be more rapid than is customary, thus providing more beds for those on the outside. When the State Sanatoria first opened, those in charge established a rule that no patient could remain more than six months. There were a few exceptions. They must move on and give others a chance. I felt that this was a good rule and will still hold true, for, after a patient spends six months in an institution for the cure, he should have a pretty good idea of what he should do and how to do.

When pneumothorax began to play such an important part in treatment, gas cases were permitted to remain one, two and even three years because there was no one near their homes to give them refills. Today this is no longer true with our present system of good roads and automobiles. I dare say a great majority of the cases may easily reach someone skilled in performing pneumothorax without doing them any appreciable harm. I have a number of cases that drive forty and fifty miles for their refills with no untoward effects.

I feel that the number of beds for indigent patients should be greatly increased, especially should there be a greater number for negroes. We have nearly three times as much tuberculosis among the negro race as among the white, yet we have approximately 935 beds for whites while there are only 200 for negroes in the entire State. Is that a fair distribution? We should also have more local or community sanatoria for the advanced cases with State subsidy. The State sanatoria cannot take care of the far advanced cases; they are an obligation on the community, though often the burden becomes too heavy, and State aid should be given.

DR. F. D. WILSON, Norfolk: The economic side of this subject, of course, appeals to us very deeply. Last year the State Child Welfare Committee of Virginia, composed of groups interested in child welfare, including the Medical Society of Virginia, adopted a resolution indorsing a bill before the State legislature appropriating $195,000 for child-welfare work, including $100,000 for tuberculosis work. The legislature "passed it up."

Dr. Ennion Williams conceived the idea some years ago and recommended that in each congressional district there be erected a sanatorium for taking care of the advanced cases. As Dr. Cole and Dr. Harrell pointed out to you, it is the indigent advanced cases that are doing so much harm in the community. In the Second Congressional District this work has progressed to the point where ground has been broken for a hospital for fifty cases. That is not a very great advance when you think there are probably 1,000 cases in that district, but it is at least a beginning. The advanced cases that are seen are largely in that class of low economic standards where members cannot take care of themselves and who have become a charge on the community. My feeling is that we shall not lower the incidence of tuberculosis and the death rate from tuberculosis much more unless the State or the larger governmental units, such as the congressional districts, erect sanatoria to take care of the advanced cases. We have such a sanatorium under way now in the Second District.

DR. W. E. BROWN, Sanatorium: I want to say that Dr. Cole very forcibly expressed the great need for adequate facilities to take care of the tuberculosis problem. I must say that the facilities in the State of Virginia at the present time are entirely inadequate. The National Tuberculosis Association, a number of years ago, adopted as a minimum standard that every State should have a bed for each annual death. In Virginia the death rate has decreased and the number of beds has increased until we have come to approximately half of that minimum desirability.

Dr. Cole said something about the beds being equally available. I do not know just exactly what he means by that. So far as new patients are concerned—those who have not had an opportunity for sanatorium training and treatment—the beds in the State institutions are equally available as far as their resources admit. The institutions are of mixed construction. The pavilions for ambulatory patients are not equipped, nor is there an appropriation to maintain them as infirmaries. It is obviously unwise to take an ill patient and put him in a building designed only for ambulatory patients. So we are, of necessity, carrying two waiting lists, one for infirmary patients and one for the ambulatory type. They are given equal chance for admission with the exception that cases with "open" tuberculosis who are in homes where small children are exposed to them are given preference.

In the matter of the amount of surgical treatment that our patients are receiving, I believe that we have gone as far in this matter as we consistently can. Every pa-

tient that is admitted is given a careful physical and X-ray examination, as well as complete laboratory work. Each case is brought up in staff conference, and the treatment of each individual is discussed. If there is any chance of benefiting a patient by surgical interference he is given the opportunity of receiving this treatment. A few refuse it.

I do not feel that in the minimal cases of tuberculosis, unless the lesion appears to be of the flagrant type, we are justified in starting immediate compression on them. A great many minimal cases, with proper rest, will get the lesion arrested and still have a free pleural space. Pneumothorax is almost invariably followed by closing of the intra pleural space, and any subsequent pulmonary disease may result in distortion of the bronchial tree and pulling over of the mediastinum.

In the fiscal year ending June 30, 1936, 60 per cent of our patients who had definite pulmonary tuberculosis received some form of immobilization of the diseased lung. Of those remaining in the Sanatorium at that time 68 per cent were being treated by some form of thoracic surgery.

The practice of compressing a diseased lung and returning the patient to duty within a relatively short time may be advisable in some patients, but I am free to say that in not over 10 per cent of our cases would that be possible. Nearly all of them have active clinical disease in the other lung, and you know that if you put a patient with clinically active disease to work, the result will usually be bad.

We have endeavored to encourage the physicians of the State to equip themselves for administering artificial pneumothorax. Patients who can avail themselves of this treatment from some private physician may be returned to their homes much earlier than others. Physicians in the following cities and towns are now equipped to do this work in Virginia: Abingdon, Alexandria, Ashland, Burkeville, Charlottesville, Chase City, Clifton Forge, Culpeper, Danville, Flint Hill, Fredericksburg, Harrisonburg, Hillsville, Leesburg, Lynchburg, Newport News, Norfolk, Orange, Petersburg, Pulaski, Roda, Richlands, Richmond, Roanoke, Salem, South Hill, Tazewell, Waverly and Winchester.

DR. H. A. LATANE, Alexandria: I want to congratulate Dr. Cole upon his timely paper and upon his call to arms to fight tuberculosis in Virginia. If the statistics are right, Virginia ranks third from the top in mortality rate in the whole United States, and in the Southern States we rank fourth from the top in mortality rate. Lots of people say that, on account of the negro population, as compared to the Northern States, we have this result; but the Southern States to the south of us have a larger negro population. Also, since the depression our mortality rate has been on the increase. In other words, not as much work has been done, appropriations have fallen off, and the rate has gone up. We have spent much in holding clinics in different parts of the State and much on case finding. There is no difficulty in finding cases; the question is what to do with them. At least 50 per cent of the cases found in clinical work are indigent cases, and there is no way to treat them except in the home, which is, of course, inadequate.

I understand that we have 1,000 more deaths annually than we have cases in our sanatoria. It is those cases which spread the disease. All other States seem to have been able to get appropriations to take care of these cases, except Virginia. I have worked in four other States, and all of them seemed to have devised methods of taking care of indigent cases. Virginia seems to be at the tail end of the whole United States in the fight on tuberculosis.

I want to congratulate Dr. Cole upon his paper again. I hope that this matter will be carried to the legislature and that we shall finally get a decent appropriation for carrying on the work against this disease.

DR. FLETCHER J. WRIGHT, Petersburg: I enjoyed Dr. Cole's paper very much and think he has covered the subject well. But we are not going to control tuberculosis until the doctors of the State become tuberculosis conscious. We have been dilatory in looking for it and, when we find a case, looking for the contacts and tuberculin-testing the contacts particularly children.

There is no question about the economic aspect of tuberculosis. The more serious side of it is that, occurring between the ages of eighteen and forty-five, when the young men are getting on their feet and young women are preparing themselves for their future life, we have the most cases with the highest mortality.

About 90 per cent of tuberculosis diagnosed early can be arrested. And most of us can diagnose it early. Of course, we know that frequently we cannot make a positive early diagnosis; but with the help of the State and with the help of our localities some arrangement can be made for the X-ray examination of all suspicious cases. They should have sanatorium treatment early, as well as those advanced cases who are spreading it over the face of the earth. If the cavities can be closed, we shall advance a long way. There are about 90 per cent of early cases of tuberculosis that can be arrested by strict rest and proper sanatorium care for from six months to eighteen months.

I heartily believe in pneumothorax. As is well known, there are some hazards. The introduction of any foreign material into the pleural space makes the pleura more apt to stick, making your subsequent pneumothorax more difficult after the lung is allowed to expand. Of course, all of us agree that proper food and rest, especially in early cases, are most important. I do feel that we need vastly more sanatorium room than we have. We need, of course, as I said, to close the cavities, by pneumothorax if possible, if impossible, thoracoplasty to free them of tubercle bacilli and stop the spread of tuberculosis.

DR. FRANK S. JOHNS, Richmond: There are two points in Dr. Cole's paper which I want to stress: 1. That the number of patients receiving collapse therapy in our State tuberculosis hospitals must be considerably increased. It was heartening to hear from Dr. Brown that at Blue Ridge he has finally gotten as many as 60 per cent of the patients under some form of collapse therapy. But I believe he should be giving this life-saving treatment to at least 80 per cent of his patients there.

2. The second point that I wish to emphasize is this:

XUM

If we give collapse therapy promptly, and to a greater number of patients, the number of hospital days per patient will be fewer, and therefore a greater number of patients can be treated by these institutions each year.

DR. WILSON, Norfolk: I should like for each one of us to see our respective representatives and do all we can to arouse their conscience, so that they will vote more than 10 per cent of the amount we suggest.

DR. E. C. DRASH, University: I should like to discuss particularly the surgical phase of the treatment of pulmonary tuberculosis, as I have been very much interested in that during the last few years. During that time, and especially within the last two or three years, a large number of these cases have been operated on at the sanatoria. I have not the exact figures; but not fewer than 500 cases of phrenic-nerve operations and so-called closed internal pneumonolysis—that is, freeing of the lung from the chest wall—have been done. I do not believe that any patient in the three State institutions in need of such a procedure during the last three years has failed to receive it because of inadequate facilities. As Dr. Cole has said, the operating rooms at the State Sanatoria are not of the best, but they can be used except for major operations such as thoracoplasty.

Some months ago I made some investigations and turned in a report to the State Board of Health. At that time there were about fifty patients in the three sanatoria who needed thoracoplasty, but could not have the operation because of financial difficulties.

All of these patients have rather far advanced pulmonary tuberculosis, and sputum loaded with tubercle bacilli. Such patients would be a definite public health menace at home. Sanatorium treatment offers nothing further in a curative way.

It would be possible by transfer of State funds from one budget to another to operate on such patients and release the beds which they are now occupying in a sanatorium, for the treatment and education of new patients.

Dr. Cole has indicated that the number of beds for tuberculous patients is quite inadequate. I agree with him entirely in this and hope that additional beds will be provided. However, as I have pointed out, about fifty beds per year, now occupied by free patients, could be released for new patients if means were provided to do thoracoplasties when indicated on these free patients.

DR. COLE, in closing: I think we all agreed concerning the principles of tuberculosis control and also that we necessarily disagree concerning the details of treatment for certain individual patients. For example: The question of pneumothorax or other collapse measures for the patient with minimal tuberculosis presents no great problem to us since we see but few patients with minimal disease.

The tuberculous indigent patient is our greatest problem and especially when hospitalization is mandatory because of an emergency. The State of Virginia makes but little provision for the indigent tuberculous patient and many communities make almost no provision. We believe that if the State or local community would make provision for the necessary treatment of the indigent patients, both in the sanatorium and at home, that we would experience no great difficulty in persuading a sufficient number of capable doctors or hospital units to provide equipment and make available adequate facilities for the continuance of pneumothorax. The practicing physician cannot afford to administer pneumothorax if a large proportion of his patients do not pay.

Tuberculosis in the negro is a serious problem at best, but we cannot hope for tuberculosis control without making adequate provision for the care and treatment of the tuberculous negro. So far as I know, the State of Virginia does not provide a single bed for the treatment of negro children suffering with pulmonary tuberculosis.

Regarding chest surgery in the treatment of pulmonary tuberculosis: If collapse therapy is good treatment, why not make this available to every sanatorium patient? Why should Blue Ridge patients have to be moved to Charlottesville for thoracoplasty? Why should Catawba patients have to be transported across the mountain to Roanoke or elsewhere for this operation? Many other sanatoria offer these facilities within the institution, why not our State Sanatoria?

As to sanatorium training: Of course, sanatorium training and treatment is desirable for all patients. This training is necessary for the ignorant and because of this necessity we make a plea that this training and treatment be made available to the indigent.

WERDNIG-HOFFMAN FAMILIAL PROGRESSIVE MUSCULAR ATROPHY.

THOMAS D. WALKER, JR., M. D.,
Newport News, Va.

Historical. "Progressive atrophy of the muscles was first described by Duchenne in 1849. In 1861 he described a case of pseudo-hypertrophic muscular paralysis. Since that time a great variety of forms of muscular atrophy have been described. In 1861 Werdnig described a myopathy which he called familial spinal progressive muscular atrophy. Four years later he reported twenty cases in one family. He also reported two children of the same mother, though of different fathers, that had the disease. Two years later, in 1893, Hoffman described a similar case. In Hoffman's cases only in one family

did the disease appear in more than one generation."

The disease was described by the authors as follows: Birth is normal and development proceeds normally until the latter part of the first year or beginning of the second year when weakness of the muscles of the back and extremities are noticed. The progress of the muscular weakness is rapid and within a few months the child becomes helpless. The muscle weakness is symmetrical. In the latter stages of the disease the subcutaneous fat disappears. The sphincters are not affected and intelligence is not disturbed. Deformity and ankylosis of the joints results from non-use. Emaciation and weakness are progressive and death occurs within a few years from some intercurrent infection, usually respiratory.

The primary cause of the condition is a degeneration of the anterior horn cells of the spinal cord. Treatment has been of no benefit.

Case History: George D., white, male, age five and one-half years.

Present Illness: Began three days ago with a "running nose" and fever. Fever has not been high, but continuous. Takes food or water with difficulty.

Developmental History: Pregnancy uneventful. Full-term baby, normal labor. Birth weight seven and one-half pounds, breast fed during first year. Sat alone at six or seven months of age and cut teeth about the same time. Walked and talked at one year of age. No illnesses during first year.

When the child was fifteen or sixteen months of age the mother noticed that he had difficulty in walking. The child then began to crawl instead of walk and in crawling the arms would give away and he would fall on his face. Weakness progressed rapidly and by two years of age the child was helpless and bedridden.

For three and a half years the child has been unable to move any part of his body, and all food, including milk and water, has been given with a teaspoon. There has been no incontinence of urine or faeces.

Family History: Father and mother, native Americans, born in North Carolina, ages thirty-nine and thirty-seven years, respectively. No miscarriages. Blood Wassermann negative. History otherwise negative.

There have been nine children, five girls and four boys. The first child, a boy, and the five girls are living and well. The third child was a boy. His birth was normal and he developed normally until one year of age, when his mother noticed that he would not sit alone, and when he crawled one arm would give away and he would fall. Within a short time weakness of the legs was observed and he could only walk by holding his mother's hand. In a short time he was unable to stand, and by two years of age, was unable to move any part of his body. He died at four years and nine months of pneumonia.

The next two children were girls, and are living and well.

The sixth child was a boy. His birth was normal and his development was normal until fourteen or fifteen months of age, when weakness of his legs was noticed by his parents. While walking, his legs would give away and he would sit down. Within a short time, he would only attempt to walk by holding his mother's hand. By two years of age, he was helpless and bedridden, and he died at three years and nine months of pneumonia.

The seventh child was a boy, the patient.

The eighth and ninth children were girls and are living and well.

Physical Examination: An emaciated, dehydrated, acutely ill child with a respiratory infection. Temperature 101. Pulse 120. Respiration 25. The child is completely helpless, unable to move any part of his body, or make the slightest sound. The arms and legs, when raised, fall helplessly to the bed. The elbows, wrists, knees, and ankles are ankylosed. The skin is dry and hot, and remains in folds when pinched up. There is no subcutaneous fat.

Ears.—There is a slight tubo-tympanic redness. Hearing is present.

Eyes.—Conjunctivae are congested. Pupils react to light and distance. Eye grounds not observed.

Nose.—There is a mucus discharge.

Mouth.—Mucous membranes congested, tonsils small, mucus in nasopharynx.

Teeth.—Small in size, and carious.

Chest.—Breathing slightly accelerated while the chest expansion is symmetrical. The sternum is caved in and seems to almost rest on the spine.

Lungs.—Are filled with coarse mucous rales throughout. No consolidation present.

Heart.—Rapid, rhythm normal, impulse impaired. No abnormal sounds heard. Pulse volume small.

Abdomen.—Scaphoid. Liver and spleen not felt. No masses present.

XUM

Reflexes.—Patella, plantar, triceps, biceps, etc., all absent, although sensation is present.

Extremities.—Cannot move the extremities, not even the fingers or toes. There is ankylosis of elbow and wrist, knee and ankle from non-use.

Genitalia.—Undeveloped.

Blood.—Erythrocytes 4,560,000. Hemoglobin, 12 grams per 100 cc. of blood. Leukocytes 18,000. Polymorphonuclears 55 per cent. Small lymphocytes 30 per cent. Large lymphocytes 10 per cent. Mononuclears 2 per cent. Basophiles 2 per cent. Eosinophiles 1 per cent. The blood was concentrated, due to anhydremia; this, of course, influenced the cell count.

Urine.—Concentrated, but otherwise negative.

X-ray.—Roentgram of the chest shows a collapse of the chest wall, slight displacement of the heart to the left, and also the presence of a bronchitis. Roentgram of the leg shows improper bone formation (bone scars) and porosity. There is also atrophy of the bone, with almost complete atrophy of the muscle. There is delayed development of the carpal bones, only three carpals being present. At five and a half years there should be five to seven carpal bones.

CONCLUSIONS

The familial character of this case, the age of onset, the rapidly progressing muscular atrophy, the symmetry of muscular involvement, normal sensory function, and loss of motor power indicate that this is a case of Werdnig-Hoffman familial spinal muscular atrophy.

The child died a few days after being seen, from starvation and anhydremia.

DISCUSSION

Spinal progressive muscular atrophy may be confused with other types of myopathies, but if a few facts are kept in mind, the differential diagnosis is not difficult. This type of muscular atrophy does not begin until twelve to eighteen months of age; it is much slower in development, affects first the extremities, and extends to the trunk later.

Pseudo-hypertrophic myopathy does not usually begin before the third or fourth year; is not so rapid in its progress, and there is usually hypertrophy of a distinct group of muscles such as the calves of the leg.

Myatonia congenita is present at birth and there is usually no muscular wasting. The condition has a tendency to improve.

Poliomyelitis, multiple neuritis, and rickets might be confused at times with the myopathies, but a careful history and thorough physical examination should clear up the diagnosis.

Medical Arts Building.

REPORT OF TWO CASES OF TETANUS AND THE DIFFERENTIAL DIAGNOSIS.*

W. O. PORTER, M. D.,
Roanoke, Va.

The symptoms of tetanus were known to Hippocrates, but the organism which causes the disease was not isolated until 1884 by Nicolaier and in 1889 by Kitasato.

Although much has been said on the radio and in the newspapers in regard to this disease, it seems the public does not yet fully realize the seriousness of tetanus.

I shall report tonight two cases of tetanus which are of recent origin, one terminating fatally and the other one recovering. These two cases are cited out of eight cases which I have treated during the past nine years. The other cases did not produce any unusual symptoms from these two cases. The mortality rate was a little over 50 per cent.

Case 1 was a well-developed child, seven years of age, who received a laceration about one and one-half inches across the lower margin of the right knee-cap, the wound being a superficial one. This wound was received when the child fell upon a very sharp rock. The child was given a general anesthetic and the wound was cleansed with sterile boric acid solution. All small fragments of rock and dirt which were visible were removed by the aid of forceps. Then the wound was irrigated with 70 per cent ethyl alcohol; finally, tincture of Metaphen was applied. Five sterile silk sutures were

*Read before the Roanoke Academy of Medicine.

taken and a rubber drain was inserted. On the fourth day the wound was dressed and the drain removed. The child was getting along nicely and the wound was apparently healing. The parents objected very greatly to giving anti-tetanic-serum the day of the injury because the child had recently been given toxin-anti-toxin, and, moreover, had just been vaccinated. The child was discharged as cured on the tenth day after all the sutures had been removed. On the fourteenth day after injury I was called to the home of this patient. I found the child very nervous and had not slept very well the previous night. Temp. 101, pulse 96, resp. 24. Upon examination of the wound, there was no pus and it was entirely healed. The early symptoms of tetanus had not become manifest on this day. The following day upon visiting the patient, there was an entirely different picture. The child's neck was rigid, the arms and legs were stiff, and the jaws could not be opened except by force,—then, only slightly. There was difficulty in swallowing, the face had assumed the characteristic sardonic smile, and the abdomen was now board like. Axillary temp. 102, pulse 130, resp. 30. The patient was removed to the hospital and active treatment begun immediately. The blood picture did not show anything except a mild leucocytosis and the spinal fluid was not under pressure. Cell count normal. At the time of the spinal tap 10 c.c. of spinal fluid were removed. As the patient had been tested with tetanus serum and found not sensitive, 5,000 units of A. T. S. were given intraspinally, while 10,000 units of A. T. S. were given intravenously. The following day 10,000 units were given subcutaneously. A few hours after this there were definite signs of improvement. The wound was reopened but no pus found; however, 5,000 units A. T. S. were injected into the skin around the wound. On successive days 10,000 units of A. T. S. were given subcutaneously, making a total of 40,000 units of A. T. S. this patient received. The child continued to improve and on the twelfth day after admission to the hospital was discharged.

The *second case* of tetanus was that of an elderly woman, sixty-nine years of age, well developed and well nourished. I was called to see her the first time seven days after her injury. She had received a punctured wound from stepping on a rusty nail. The nail penetrated the ball of the left foot and evidently struck the bone. The morning of the examination the foot presented all the signs of acute inflammation, the swelling being very great at this time. The patient was ordered to bed and a wet dressing consisting of Oschner's solution was applied. At this time the patient complained of chilliness and difficulty in swallowing. I examined her throat and found she had acute follicular tonsillitis. The throat was mopped with 2 per cent silver nitrate solution. At this time the symptoms of tetanus could not be definitely established. The next morning this patient was visited with a consultant and, after examination, we found all the symptoms of tetanus well established. There was marked rigidity of the jaws, and the mouth could not be opened except by force. The arms and legs were stiff and the abdomen was greatly distended with marked constipation. The inflammation in the foot had subsided, but the patient was having chilly sensations very frequently. It is well to mention at this point that the early symptoms of tetanus are sometimes very slight and if one is not careful one may overlook them. This patient was immediately removed to the hospital where active treatment was begun. She was tested for sensitivity and 20,000 units of A. T. S. were administered subcutaneously, as her veins were occluded. The bowels were evacuated by S. S. enema. Stimulants were used, but were of no avail. She expired eight hours after admission with a diaphragmatic paralysis.

THE DIFFERENTIAL DIAGNOSIS

It might be well, in conclusion, to say a few words upon the differential diagnosis of tetanus. This disease may resemble several other pathological conditions. Of course, the history of injury is of very great importance. In strychnine poisoning we very rarely have the muscles of the jaw involved, and those of the neck and trunk are relaxed during the convulsions. Tetany differs in the localization of the muscles affected, the rigid extension of the fingers with the thumbs drawn in toward the palms, the plantar flexion of the feet and toes, the absence of the rigidity of the jaws and of the lumbar muscles, and the probable association with rickets in children. Epilepsy and hysteria have quite distinct characteristics. The throat infections, such as peritonsillar abscess and cellulitis, are not accompanied by the fixation of the jaws. This may be differen-

tiated by local examination. The early symptoms of meningitis are occasionally confusing and here one must make a spinal puncture and examine the spinal fluid for the meningococcus organism. It must be remembered that in tetanus it is not the germ that kills but the toxin which travels over the nerves until it reaches the higher center of the brain. Since the tetanus organism is a spore bearing one, it is readily seen why the antiseptics used were of no avail in the first case.

INTESTINAL BLEEDING.*

OSCAR L. HITE, M. D.,
Richmond, Va.

The loss of blood from the enteric tract is the most important single symptom of gastro-intestinal disease. When observed the clinician should make every effort within his power to ascertain its origin. Too frequently it is passed by as a trivial matter and ascribed to hemorrhoids or similar simple conditions.

The character of the blood when passed per rectum is helpful in determining its source. When the blood is dark and tarry it indicates that the lesion is high up in the intestinal tract, although this is not an infallible rule since the volume of blood and the rate at which it was lost would determine its rate of progress through the intestinal canal. On the other hand, if the blood is red, the probability is that it originated from the bowel or rectum.

It has been considered wise to discuss this subject under three general headings:

1. Bleeding from acute infectious diseases—
   a. Typhoid fever
   b. Biliary disease—acute and chronic cholecystitis
   c. Pancreatic disease—acute and chronic pancreatitis
   d. Appendicitis
   e. Intestinal parasites
   f. Amebiasis
   g. Hookworm
   h. Bacilli of various sorts.
2. Parenteral disease—
   a. Liver
      1. Tumors
      2. Hepatic cirrhosis
      3. Acute necrosis
      4. Portal cirrhosis
      5. Obstructive hepatic jaundice
      6. Ca. common duct
      7. Hemochromatosis
      8. Primary Ca. of gall-bladder
      9. Calculi of external biliary system
      10. Spirochetosis ictero-hemorrhagica.
   b. Pancreas
      1. Ca. head of pancreas, involving duodenal wall.
   c. Spleen
      1. Vaquez's disease
      2. Polycythemia
      3. Gaucher's disease
      4. Van Jaksch's disease
      5. Banti's disease.
   d. Adhesions producing varices
   e. Aberrent endometrial cells.
3. Organic disease of the intestinal tract itself—
   a. Peptic ulcer
   b. Carcinoma
      1. Stomach
      2. Bowel
      3. Rectum
   c. Meckel's diverticulum
   d. Polyposis
   e. Diverticulitis
   f. Hemorrhoids
   g. Chemical irritants
   h. Fissure of rectum
   i. Allergic manifestations
   j. Thrombosis of mesenteric vessels
   k. Intussusception
   l. Duodenitis.

It would be impossible to discuss in detail all the causes of bleeding from the intestinal tract in the scope of this paper. If recounting a majority of the causes of bleeding from the enteric tract and dis-

*Read before the sixty-seventh annual meeting of the Medical Society of Virginia, at Staunton, Va., October 13-15, 1936.

cussing in some detail the more common causes and their treatment would make us more alert in the proper interpretation of bleeding, I feel that our time will have been of some avail.

The most distressing condition among the acute infectious diseases is that of acute hemorrhagic pancreatitis. It is most commonly associated with biliary disease. Opie reported stones in 40 per cent of his cases and extension from contiguous infected tissues. Hemorrhage into the intestinal tract and hematemesis do occur in this condition although they are rarer symptoms. More often hemorrhage is intra-peritoneal and there is an associated peritonitis. The condition runs a rather rapid course and the patient as a rule recovers or dies within a week's time. These patients do not improve by waiting and as soon as adequate preparation can be made a simple operation such as cholecystostomy should be attempted. Every possible supportive measure should be utilized after operation.

The most frequent cause of intestinal bleeding among the acute infectious diseases is that of intestinal parasites. The endomeba histolitica, hookworm, round worm, and the dysenteries are frequently encountered in Virginia. If ulceration results from infestation of this kind the blood is as a rule mixed with pus and, unless the hemorrhage is profuse, the patient as a rule complains of distress across the lower abdomen in the region of the colon and at times in the rectum, from amebic proctitis. Ulcerations of the colon may result from tuberculosis. In every type mentioned the laboratory technician is indispensable in the correct diagnosis. Once correctly diagnosed the therapy is simple. Typhoid fever is a disease of rare occurrence now. Formerly many people died from ulceration and hemorrhage from Peyer's patches.

Among the parenteral diseases most frequently causing hemorrhage into the intestinal tract one might mention the many varieties of cirrhosis of the liver. No effort will be made to classify the various forms of hepatic cirrhosis. Suffice it to say, however, there are as many types of cirrhosis as there are irritants and infections.

Hematemesis is the first symptom that suggests portal cirrhosis. If it is not an initial symptom, it is observed sometime during the course of the disease. It is not at all unusual to have one hemorrhage followed by another one at short intervals. These hemorrhages are rarely ever fatal. They result from rupture of varices most often in the esophagus. The slightest abrasion anywhere in the upper intestinal tract may result in a hemorrhage. Hemorrhage is not confined to the intestinal tract alone but may occur anywhere in the body.

The size of the liver varies; it might be atrophic or hypertrophic and we can not always be sure of a diagnosis based upon the size of that organ.

The prognosis in cirrhosis of the liver is bad. If the causative factor could be discovered early and removed, some hope of arrest might be expected. Hemorrhage in itself is not a bad prognostic sign but hemorrhage associated with ascites should always be looked upon as an unhealthy development.

The treatment of most types of cirrhosis has been unsatisfactory. The diet should be restricted; simple fluid intake is prescribed and the patient should rest in bed with the administration of sedatives when necessary. Surgery has been resorted to in an effort to establish collateral circulation without any degree of success. Our efforts should be directed to determining the cause and removing it.

Tumors and calculi of the biliary system often cause hemorrhage into the intestinal tract. In these conditions the outlook is much more hopeful as it is a relatively simple matter for a skilful surgeon to remove either successfully, provided the tumor is not carcinomatous in character.

The spleen also comes in for its share in the production of hemorrhage into the intestinal tract. The functions of the spleen are manifold and varied and they are closely hooked up with the reticulo-endothelial system. Any disorder involving the reticulo-endothelial system is usually accompanied by splenomegaly.

Banti's disease is no doubt encountered more frequently than any other splenic disease producing hemorrhage into the intestinal tract. The patient as a rule consults a physician complaining of having had hematemesis, anemia and symptoms caused by a large mass in the left side of the abdomen. Hemorrhages and hematemesis are frequent manifestations of this disease. These hemorrhages may be small or large and they may occur frequently. At times they may be fatal. More often, however, the patient recovers. An erroneous diagnosis may be made through failure to make a thorough examination of the abdomen. If a thorough physical examination is made, little difficulty should be experienced in a correct diagnosis.

XUM

The prognosis in Banti's disease is excellent provided surgery is resorted to and a splenectomy is done.

Intra-abdominal adhesions may disturb the circulation in the mesenteric vessels and produce a varix from which hemorrhage may occur. Three years ago such a case came under my observation. Every diagnostic aid was exhausted in an effort to determine the source of hemorrhage but to no avail. Knowing that hemorrhage was a serious symptom and being unable to determine its cause, the patient was advised to have an exploratory laparotomy. The patient, being an unusually intelligent man and realizing the gravity of the situation, submitted to the operation. At the operation it was found the greater omentum was adherent to the abdominal wall in the upper right quadrant, the appendix was diseased and adhesions about it and the veins in the last half of the duodenum were extremely dilated, simulating those of varicocele. These adhesions were released and the appendix removed. The patient made an uneventful recovery, has been symptom free now for over three years, and has had no further hemorrhages.

A female came under observation about the same time, giving a similar clinical history. She was hemorrhaging at more regular intervals, occurring concurrently with the menses. A complete study was made of her gastro-intestinal tract, including X-rays, but no satisfactory explanation could be found for the hemorrhage. An exploratory laparotomy was advised and performed. Nothing of any significance was found at the operation. The patient convalesced well and has continued to hemorrhage from the intestinal tract during menstruation. The best conceivable explanation of the gastro-intestinal hemorrhage would be that of aberrant endometrial cells in the intestinal tract. An artificial menopause in a case of this sort no doubt would be justified.

The most common source of bleeding among the organic diseases of the enteric tract is that of peptic ulcer. It is no respector of tissues; in fact, at times it seems to have an affinity for the vascular system about the antrum, pylorus and duodenum. I suppose every patient with a peptic ulcer hemorrhages in varying degrees from time to time. At times these hemorrhages are so profuse that the patient comes down in shock. One hemorrhage may follow another until the patient is anemic and prostrated.

It cannot be repeated too often nor stressed too strongly that the physical examination should include a digital rectal as well as a procto-sigmoidoscopic examination. Roentgenologic examination is indispensable in diagnosing lesions of the upper as well as the lower intestinal tract. I do not think, however, that Roentgen examination should be resorted to during or immediately following a hemorrhage. It would probably be best to wait until the stool is free of blood. A word of warning, when symptoms of obstruction appear, would be appropriate. An acute obstruction might be precipitated if an opaque meal is given by mouth. If the obstructive symptoms appear to be in the lower bowel, it would be the part of wisdom to administer a barium clysma and, if any obstructive signs are observed, the material could be stopped and the bowel permitted to empty itself.

Daily determination of blood non-protein nitrogen is a helpful aid in deciding whether there is a progressive type of hemorrhage. If the N.P.N. remains high, one would be justified in concluding that the patient was still hemorrhaging.

The treatment of any type of hemorrhage is relaxation and rest in bed. Morphine should be used freely to obtain relaxation. If the hemorrhage has been free enough to produce shock, a transfusion should be given. I think it useless to give small transfusions. Nothing less than 500 c.c. of whole blood should be given at a time and if necessary, it should be repeated two or three times. No food should be given by mouth. Ringer's solution and glucose should be given freely by vein and hypodermoclysis. Some form of calcium given intravenously is also beneficial.

I consider gastric ulcer a surgical condition as soon as diagnosed. Some writers conclude that as high as 30 per cent of them become carcinomatous. They should not be operated upon, however, during the bleeding stage. When there is a recurrent type of hemorrhage in a duodenal ulcer, surgery is the treatment of choice. Otherwise, medical treatment should be given preference. Many cases hemorrhage once and may never do so again.

Among the less frequent causes of intestinal hemorrhage one should bear in mind Meckel's diverticulum. This condition is seen more frequently among children and young adults. It has been shown that the epithelial lining of this duct may have heterotopic glands of gastric or pancreatic cells. These cells simulating those of the gastric mucosa

secrete an acid and at times an autolytic enzyme. Ulceration often occurs in Meckel's diverticulum and hemorrhage may result. Whenever there is an unexplainable hemorrhage from the gastro-intestinal tract, one would do well to remember this vestige which once served a useful purpose. Meckel's diverticulum is difficult to diagnose except at an exploratory laparotomy. There is only one treatment and that is surgical removal. Likewise, one occasionally sees bleeding in intussusception. This condition is also more often seen in children and young adults. The clinical picture of pain, vomiting, bleeding, excessive peristalsis (which at times is visible) and the palpation of a mass in the right side of the abdomen is diagnostic. Surgical intervention is imperative in intussusception.

Polyposis of the intestinal tract, particularly of the colon, is not an infrequent cause of hemorrhage. This condition is easily diagnosed by proctoscopic examination. The condition as a rule is seen in young adults and its treatment has not been at all gratifying. All kinds of surgical operations have been performed on these people and none of them have proven satisfactory. The prognosis is extremely grave in this condition and most of these people die before attaining thirty years of age.

Volumes have been written on carcinoma of the intestinal tract. People having carcinoma hemorrhage in varying degrees, at one time or another. It is usually an early symptom, which should not be ignored. The first sign of hemorrhage should be investigated carefully and if there is the least suspicion of carcinoma, radical excision of the involved area should be performed. An educational campaign should be promulgated by physicians encouraging the laity to become cancer-conscious and to have periodic physical examinations. If we could have an early-diagnosis campaign for cancer of the intestinal tract the mortality rate from this condition would be appreciably reduced. The treatment of this condition is always surgical, and it can be none too radical.

Occasionally one sees hemorrhage from chemical irritants and allergic manifestations. The former is caused by some error in taking medicaments except for an occasional attempt at suicide. The latter is a more difficult problem, when encountered, and requires the greatest of skill in ferreting out the cause. Once it is determined, the treatment is simple—remove the cause.

Little difficulty should be experienced in diagnosing fissures and hemorrhoids, each of which frequently hemorrhage. Hemorrhoids should be investigated carefully to see that they have no malignant base. The tendency has been to attribute intestinal hemorrhage to the simpler conditions and later developments have proved otherwise.

SUMMARY.

In many of the conditions mentioned extensive bleeding is a rare occurrence. They have to be borne in mind, however, in our differential diagnosis of obscure bleeding.

Gross bleeding from the intestinal tract may result from a variety of causes. It should always be considered seriously and every diagnostic aid should be exhausted in an effort to determine its origin.

REFERENCES

1. Proceedings of the Staff Meeting of the Mayo Clinic: Vol. 9, p. 776, 1934.
2. Proceedings of the Staff Meeting of the Mayo Clinic: Vol. 9, p. 280, 1934.
3. Brown, Philip W.: Bleeding from the Bowel, *Illinois Medical Journal*, 66; 79-82, 1934.
4. Rendlemon, W. H.: The Clinical Significance of Hemorrhage from the Bowel, *Journal Iowa State Medical Society*, 24: 483-485, 1934.
5. Mayo, Chas. W.: Acute and Chronic Intussusception, *Ohio State Med. Journal*, 29: 693-694, 1933.

DISCUSSION

DR. DONALD S. DANIEL, Richmond: Time will not permit me to discuss every etiological factor of gastro-intestinal bleeding, but, with your permission, I would like to elucidate upon one or two of the more important.

Passage of blood from the rectum is a very grave sign. The older the patient, the more alarming the sign. I particularly refer to bleeding of carcinomata of the colon, sigmoid and rectum. Carcinoma of the right half of the big bowel and carcinoma of the left half of the big bowel can be spoken of as separate entities. Their signs and symptoms are entirely different. Carcinoma of the ascending colon and cecum is a diffuse neoplasm; the content of the bowel is liquid in character, and therefore intestinal obstruction is very late and ofttimes the insidious growth has become inoperable. Anemia is profound and the patient usually presents himself because of weakness and anemia.

On the other hand, carcinoma of the descending colon and sigmoid has an annular growth; the bowel content has become solid and, consequently, obstruction is one of the first signs. Both of these conditions, however, have one thing in common and that is early passage of blood by rectum. Every case of occult or macroscopic blood in the stools should be investigated thoroughly. It is so easy to indict hemorrhoids as the cause of this bleeding. I have seen several patients with carcinoma of the rec-

tum, who had had a hemorrhoidectomy from six months to a year before admission to the hospital. A mere digital examination would probably have meant the difference between life and death. The terms "idiopathic" and "essential" bleeding from the rectum should be stricken from the medical nomenclature. They either express our ignorance or confess our laziness.

Every case of blood in the stools should have an anal, rectal and proctoscopic examination. If these are negative, then a barium enema, and, if this is negative, a gastro-intestinal roentgenological examination, provided there is no acute intestinal obstruction.

Another most interesting, though not as frequent a cause of intestinal bleeding, is Meckel's diverticulum. Meckel's diverticulum, as you know, is the vestigial remains of the omphalomesenteric duct of embryonal life which persists as a cul-de-sac on the terminal section of the ileum in about one to three per cent of humans. As reported by Donnell Cobb, about 17 per cent of these diverticula have a gastric mucosa which is subject to the same diseases as the stomach, i. e., ulcerations, bleeding and perforation. In any repeated intestinal bleeding and especially in children, Meckel's diverticulum should be borne in mind and seriously if all other findings are negative. In Cobb's 100 collected cases of Meckel's diverticula, seventy-two were complicated with intestinal bleeding.

DR. J. SHELTON HORSLEY, Richmond: Bleeding from the rectum is one of the signs by which we may catch malignancy in an early stage. Dr. Hite's summary of the causes of intestinal hemorrhage is very interesting.

There are four cases illustrating different conditions causing bleeding from the bowel which I should like to report. One patient was a physician about seventy years of age who had a streptococcic infection of the left leg after an automobile injury. This was followed by pneumonia, probably of streptococcic origin, and he was extremely ill and delirious most of the time. A few days after the pneumonia developed he had a tremendous hemorrhage from the bowel. We transfused him and made a digital rectal examination but found nothing. A few days later he had another large hemorrhage. He had four transfusions in all and finally recovered. We thought the hemorrhage was due to acute toxic erosions of the intestinal mucosa.

Another patient had been having three or four hemorrhages a year. It was thought the blood was from the large bowel, because the blood was apparently rather fresh. He had a terrific hemorrhage once while in Richmond, passing through to Florida. He fainted from loss of blood. We transfused him. It was finally worked out by Dr. Hodges that the blood was probably from a duodenal ulcer. It was carried to the colon by quick peristaltic rushes.

Another patient illustrates what has been mentioned about bleeding from a Meckel's diverticulum. This patient was a little girl thirteen years of age, who four years before had what was supposed to be a colitis. There were mucus and blood in the bowel movements. She recovered for a while. During the first part of this year she had several tarry stools and was quite anemic. Her blood count for red cells was below 2,000,000. A careful examination showed no blood dyscrasia. At one time it was thought that there was a polyp in the colon, but this was not definite. We finally operated, thinking it might be hemorrhage from a Meckel's diverticulum. We found a rather unusual Meckel's diverticulum, and the bleeding had come from that. This slide shows the diverticulum turned inside out. It has been cut below, so that the base appears much larger than it would ordinarily be. It has a cauliflower-like excrescence on its end, which was gastric and pancreatic tissue. One of my friends, a former intern, said it looks like a penis with multiple venereal warts on it, and it really does.

The next case is a man thirty years of age who had a lesion in the right colon. He had been having symptoms of colitis and his trouble was diagnosed colitis by a number of doctors and in one excellent institution it was thought that the mass in the right abdomen was probably a spastic colon. I operated upon him and found a cancer in the posterior wall of the cecum. There is evidence of old colitis. The right colon was removed. This cancer probably arose from a benign ulcer. It is fairly malignant, probably about grade two and one-half. This slide shows the specimen; this is the ileocecal valve and this the cancer. The patient got on satisfactorily until two weeks after the operation, when he had a terrific hemorrhage and was given a transfusion. The bleeding was from an ulcer near the suture line. The ulcer was not malignant. After three hemorrhages the ulcer was sutured. The patient then made a satisfactory recovery.

DR. W. D. HAGGARD, Nashville, Tenn.: The most frequent form of hemorrhage from the rectum is from hemorrhoids. But we must absolutely confirm the diagnosis of hemorrhoids and never make the fatal mistake of overlooking a cancer in the rectum. Digital examination fortunately will reveal the diagnosis in 75 per cent of the cases. We have all been chagrined when we have treated patients for hemorrhoids without adequate and complete examination. No matter what general examination is made, a rectal examination must be made also. For instance, I had a woman with an enormous goiter. After satisfying ourselves that her general condition was satisfactory, I removed the goiter without incident. She returned in a few months with inoperable carcinoma of the rectum. I was, of course, very much mortified because I had failed to examine her completely. I regret to say that there have been 10 per cent of cases of carcinoma of the rectum erroneously operated upon for hemorrhoids. I can say that because I have done it myself.

The best way of examining, if the patient cannot extrude them by straining, is to give an enema and then often the hemorrhoidal tumors will be exteriorized. Sometimes one can see the bleeding point in the tumor. Proctoscopic examination is not a difficult thing; it is much simpler than some of the maneuvers that general

men utilize; and it should be done. The lesion can nearly always be seen and a portion of the growth can be obtained for microscopic confirmation and grading.

Blood from carcinoma higher up usually has been changed in its appearance; it is not bright red, as blood from hemorrhoids usually is. Most of the carcinomas of the sigmoid are napkin-ring in type and are small and cause but little bleeding. When bleeding does occur, it is usually from a mechanical cause. If the lesion cannot be palpated or visualized a barium enema and X-ray pictures may show the filling defect in the colon that may be causing bleeding.

DR. SAMUEL A. ANDERSON, Richmond: I wish to refer to bleeding in childhood. Dr. Hite mentioned one cause as intussusception. Practitioners should keep that in mind. When it is looked upon as only another case of diarrhea, the child may go on to death. It occurs only rarely, of course; I have had one case in my practice. One symptom is violent pain and drawing up of the legs. Usually the onset is accompanied by vomiting; not always. Sometimes in a few minutes, but usually in about an hour, there is the passage of a large, bloody stool. The blood may be bright red; or, if contained in the bowel for some time, it may be dark. This intermittent pain usually continues until death occurs, if it goes on that long. An abdominal tumor is usually palpable as the intussusception enlarges. The keeping of this condition in mind is the important thing. As in other cases of irritation of the bowel, it is important here to refrain from giving any cathartic at all.

TREATMENT OF BACILLARY DYSENTERY IN INFANTS.*
(A Note on the Use of Fluids.)

W. EUGENE KEITER, M. D.,
Kinston, N. C.

Adequate and constant administration of fluid may involve difficulties insurmountable outside hospital practice. For example, simple refusal or vomiting may make parenteral administration necessary. In cases which require blood transfusion or the continuous intravenous drip, hospitalization is almost imperative.

Ringer's solution, Hartmann's solution, saline and glucose are usually thought of only with reference to parenteral administration. However, the oral administration of Ringer's solution with glucose may be preferable in certain instances to its use parenterally. Much more is accomplished by giving it orally than can be accomplished by giving water alone.

This is because Ringer's solution supplies electrolyte, the absence of which makes impossible the complete restoration of body fluids. Also, the constant loss of electrolyte in the diarrheal stools makes advisable a constant supply. If this factor is provided from the start, many babies will never reach a state of serious electrolyte depletion and fewer of them will need hospital care.

Attention is directed to the work of Darrow and Yannet published in the *Journal of Clinical Investigation* for July, 1936. They produced electrolyte depletion in healthy dogs by artificial peritoneal effusions. Five per cent glucose was injected intraperitoneally and allowed to stay four hours. When it was withdrawn, large amounts of electrolyte were found in it. This depleted the interstitial electrolyte in the animals. Dehydration resulted and this dehydration could not be relieved by administration of water alone. Administration of saline promptly relieved it because it restored electrolyte which by osmotic action makes possible the retention of the normal quota of body water. (The significance of electrolyte in relation to body water is admirably discussed in Peters' book on "Body Water.")

Darrow and Yannet emphasize the following important points by these experiments and make the following statements: "(1) dehydration is a phenomenon which does not involve body water alone; (2) diuresis does not develop under certain conditions characterized by a relative excess of water in relation to electrolyte; (3) thirst is not an obligatory accompaniment of dehydration; (4) water intake and urine output may be normal in the presence of dehydration."

The case is quite analogous to that of the infant with severe diarrhea, as regards water balance.

Sweetened Ringer's solution has a rather pleasant taste. It is tolerated remarkably well by the sickest babies, and it seems actually to stimulate thirst. At the same time it maintains a more

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Tarboro, N. C., December 1-3, 1936.

constant and evenly distributed state of hydration than by any other means except the continuous intravenous drip. Many infants can be given a subcutaneous injection of Ringer's solution or saline when first seen, and when badly dehydrated, and from that time on maintain themselves in excellent hydration simply by giving this solution by mouth. A splendid diuresis results.

Ringer's solution contains calcium chloride 0.25 gram, potassium chloride 0.3 gram, sodium chloride 0.7 gram to a liter of solution. For convenience in dispensing, it can be made up in twenty-five times this concentration, as for example Hartmann's lactate—Ringer's solution is prepared. Our druggists prepare it in this way and it is prescribed with instructions to add two and one-half tablespoonfuls of the solution to a quart jar and fill the jar with boiled water. One tablespoonful of ordinary cane sugar is added. This makes a very satisfactory solution for oral administration and the majority of our babies show an insatiable thirst for it. We give it in the bottle *ad lib.*

REFERENCES

1. Daniel C. Darrow and Herman Yannet, *Jour. Clin. Invest.*, 15:419, 1936.
2. Peters, "Body Water," Chas. C. Thomas Co., Baltimore, 1935.

Kinston Clinic.

SOME PHASES OF SCHOOL MEDICAL WORK.*

C. L. OUTLAND, M. D., F. A. P. H. A.,
Medical Director City Schools,
Richmond, Va.

I thought it might not be inappropriate for me to bring to you some facts found in regard to the various examinations done in the schools. I realize that it is a sort of "potpourri" and not necessarily well connected. My purpose in bringing this to your attention is for your information and I hope, to a certain extent, for your interest.

In the outset I want to state that I am frankly bringing these things to you for criticism, and for your help and advice, remembering that we of the medical department of the schools realize that to get best results we must have friends as you are, who are frank enough to show us our faults as well as to commend us for our efforts on behalf of the school children in the city.

It has occurred to me that you might be interested in our latest reports on the following examinations, methods mentioned as well as defects found, and also results in so far as corrections are concerned. I shall take them up in the following order.

1st. Nursery schools.
2nd. Pre-school.
3rd. Open-air.
4th. Special classes.
5th. Examinations with parents present.
6th. Examinations for competitive athletics.
7th. General medical inspection.
8th. Summer school examinations.
9th. High school examinations.

*Read before the Richmond Academy of Medicine on November 23, 1936.

EMERGENCY NURSERY SCHOOLS

The Emergency Nursery Schools were established in December, 1933, at which time twenty were started. It was soon found that, in order to get properly qualified teachers, supervision and set-up, the number would have to be reduced. This was done so that there are now only six, four white and two colored, with an average enrollment of twenty-five children. The aims of this type of school are to encourage and promote the physical development, habit formations, attitudes, unselfish play, and the like.

It is interesting to note that we have not had a refusal for permission to vaccinate or give toxoid; many had had toxoid before entering.

The reports on examinations in September, 1935, show that there were 145 children examined with the following results:

Tonsils	25	(15 have been removed)
Eyes	3	(1 had been fitted with glasses)
Circumcision recommended	34	(8 have been done)
Hernia	3	(all treated)
Referred to C. M. C.	18	(too early to report results)
Speech defects	6	(some improvement)
Teeth		about usual number for this age found defective, no facilities for treatment.

PRE-SCHOOL

One of our greatest difficulties is to get the examination of children entering school for the first time. Several years ago the National Organization of Parents and Teachers began what was called the "summer round-up." The purpose of this, and I think a good one, was to see that children were sent to school in good physical condition, i. e., that all entering should have an examination by the family physician, where there was one, or in a clinic when parents were unable to pay. I think this is as it should be and there are many reasons which could be given. Is there any one more familiar with the child's general condition or better able to judge whether certain things should be done, such as the removal of tonsils and adenoids, than is the family physician? Is there any one who is better prepared to explain the necessity than he is? Again his knowledge of the child and the family gives him a better chance to interpret the real needs. Why should not the family doctor take care of the vaccinations and immunizations if he has not already done so? I know from experience that, were the schools to announce that doctors would be present to examine, vaccinate and otherwise advise the parents, we would get a greater number to bring their children out on the days set for registration. Our results have been not what we want in so far as examinations go, before entering school, but I am so firmly convinced, as was my predecessor, that it is the beginning of the right way that I have been unwilling to ask doctors to go to the schools for this purpose and I take hope in the fact that further publicity through newspapers, various organizations, and personal contact with school authorities will some day popularize this type of service for the child.

With a total enrollment of 1,627 in September, 1935, 106 children were examined by private doctors and turned in the blank filled out, a copy of same I am sure all of you are familiar with.

I shall welcome suggestions from this group which will aid us in helping the parents to send a child to school in good physical condition.

I hate to say so but often the doctor does not take the proper *pains* to carefully examine the child and many parents come away feeling that it was hardly worth while.

At a recent meeting of the presidents and health chairmen of the various school Parent-Teacher Associations a discussion was had as to ways and means of making the pre-school examination more effective, as well as to see if something could not be done to encourage more parents to take their children to the family physician and dentist during summer before entering school. With this group of interested workers in such an organization behind the movement, I confidently hope that our results with the preparation of a child for school in so far as physical fitness is concerned, will be much better.

OPEN AIR

Most of you, I am sure, are familiar with the procedure for selecting children for the open-air classes. Suffice it to say that we endeavor to get those who seem most underweight and, of course, those who are contacts, in addition to such cases as may be recommended by the family physician, such as those who are subject to frequent colds, asthma, or any other condition where a routine, including a rest period, might be beneficial. After selections have been made, the nurse obtains the parent's consent and the physician's approval. As soon as a class has been filled they are given a thorough physical examination, including a chest, heart and lungs. This is done, even though the physician may have recently done so, you of course see the reason, and that is so that there is no seeming discrimination.

Our present routine is the supplying of one good nourishing meal per day followed by the usual rest period of one hour. Our main trouble is being able to reach more children as twenty in the average school of 600 to 1,000 is only a very small part of the actual need. I really believe that if we could be equipped a little differently we might make more classrooms open air, or else a whole school or schools. This probably would not be a very popular suggestion at this time remembering our past winter. The gain in weight in the open-air classes is very significant and is always more in proportion than in any other grades in school. I give you a few figures on this:

September and October, 1935	420 children	½ lb.
November	482 children	⅜ lb.
December	358 children	⅛ lb.

The first period, i. e., from time school opens until the end of October, is usually the time when weight gains are most noticeable.

SPECIAL CLASSES

These classes are usually composed of children with low I. Q.'s although in some instances a child

may need special coaching in one or more particular subjects. Since this type of instruction is somewhat more expensive, it has been the idea of the medical department to try to find and eliminate, whenever possible, any physical defects which may be causing failure. With this in mind, in most instances, these classes are given a medical inspection each year. There is at present a trend toward the idea that an I. Q. may be improved, although many educators rather doubt it. I personally believe that it is not always best to place a child in same class with those of equal or lower intelligence quotients. This is probably a debatable question. In other words should a 46 be in same class with a 70?

In one special class of thirty-three children, twenty-seven defects were found.

Defective vision	3
Defective tonsils	6
Defective teeth	18

Correction of these defects will help some but a cure is not expected.

Examination With Parent Present

Public health and school physicians have long been aware of the fact that the best results from examinations of any kind could be obtained with a parent present and, of course, the mother is the usual one to expect. With this in mind, a selected group from two schools was examined in this way. Notices were sent to the home stating that the school physician would be at the school for the purpose of medical inspection of the children and that it was requested that the mother come. Hours were arranged so that a few could come at a time, for example, three were told to come at 9:00, and three at 9:30 and so on. I'm sorry to say that the attendance was not what was hoped for, but I believe the results justified the effort to get parents out. There were eighty-two mothers present during the period and a total of 129 children were seen. Time was taken to talk with each mother about the general health of the child, his food habits, rest periods and to explain and demonstrate the method of school examinations. I feel sure this was very valuable, for within six weeks after this type of examination, we found on a check-up that many corrections had been made and others arranged for,—this, notwithstanding both schools where the work was done were in rather poor neighborhoods. One nurse had this to say on her report, "The mothers were impressed and in the majority of cases took their children to their family physician or to the clinic for advice and treatment."

Examinations for Competitive Athletics

The Virginia interscholastic athletic rules require that all children engaged in competitive sports have a heart examination. This is carefully adhered to in the city schools and each year the players on all teams are given an examination. It is our rule, wherever any reasonable doubt exists, to have the child bring a certificate from his family physician before being allowed to take part in any games. This, of course, prevents our medical department from assuming the sole responsibility in the event there should be a question raised. We always accept the family doctor's certificate. They also have to have a permission slip signed by a parent before a heart examination is given.

General Medical Inspection

The subject of general medical inspection is so well known to this group that I will not go into details; suffice it to say that this includes, general observation of the condition of eyes, ears, nose and throat, teeth, posture, weight and any abnormal condition of bone or joint. This, of course, is our major item of work.

Summer School Examinations

For the past four years the following number of students have been examined in the summer school. These schools, as you know, are on a pay basis, so it is natural to suppose that the children would be able to have the usual services of physicians and dentists, with few exceptions.

During the past four summers examinations were made as follows:

Examined		Defects Listed	
1933	342	1933	122
1934	494	1934	197
1935	577	1935	126
1936	705	1936	236
Total for 4 years	2,118		

Combined defects for four years were noted as follows:

*Eyes*____124 (Many needed glasses to be fitted and many needed change of glasses.)

*Ears*____ 44 (No one was totally deaf, ranged from a slight loss to 30 per cent.)

Tonsils-- 87 (Were considered sufficiently bad to have an examination and further advice by family physician.)

Teeth---384 (Only obvious cavities, no recommendations in regard to orthodontia or special treatment except to tell child to discuss this with dentist.)

It is interesting to note that there were almost twice as many bad teeth in 1933 with only 342 children examined as in 1935 when there were 577. I hope children are becoming more interested in the care of their teeth.

Miscellaneous--47 (Such as underweight, skin conditions, goiter are listed under this head.)

HIGH SCHOOL GROUP

In the high school group there has seemed to be a question in the minds of many educators, physicians and public health workers as to the value of the medical inspection, and until recently very little has been done further than the examination of new pupils, mostly those who had never been in the city system. These children are examined during the last term of junior high school, just before entering high school. Public health officials and many educators are realizing that this is not enough. I am fully convinced that this is the case.

I should like to quote the following statistics from examinations done this past year.

Total number examined	1,650
Total number with defects	600
Total number with defective vision	146
Total number with defective teeth	434
Total number with defective tonsils	90
Number who have had tonsils removed	826

Now these are the defects found which in our opinion should be corrected. It is interesting to note that very soon after these things have been called to the children's attention, they have had something done, as already within a few weeks since examinations there have been eighty-eight defects corrected. Is this work worth while? I think you will agree with me that it is.

I have tried to give you in summary some of the things found in the medical examinations of school children. I realize that there are many imperfections seen by you. As stated in the outset, I will be very glad of suggestions and will take any criticisms in the spirit in which any of you may give them.

THE PRACTICING PHYSICIAN'S PART IN PREVENTIVE MEDICINE.*

L. L. PARKS, M. D.,
County Health Officer,
Tarboro, North Carolina.

Preventive Medicine has been defined by Sir George Newman as "that branch of the science and art of medicine which is concerned with the preventive aspects of the healing art as distinct from its curative function. For though in practice the two cannot be separated each represents in varying degree a different specific purpose. The avoidance of disease or its infection, and the prevention or reduction of its sequelae, are obviously not identical with its remedy or cure."

HISTORICAL: The history of hygiene begins with the primeval history of man and the beginning of all is the instinct of survival; this impulse has come from the physical and mental nature of man himself, from the evolutionary history of his body and mind, from his kinship with human and animal species, from his fear of discontinuity.

Many of the beliefs in olden times were due to magic, religion or otherwise so full of mystery for us all, and have changed in the course of the ages, but that instinct or impulse, modified by the emergence of varied faiths, remains in the human mind as the greatest single governing factor in the conduct of men. Fear, lust, cruelty, and avarice are still with us, but so also are the higher faculties of humanitarianism, charity, faith and hope, and the higher ideals of goodness, truth and beauty.

The beginning of the rise of Preventive Medicine is generally considered to have developed in the land of Egypt. It was in Egypt that early civiliza-

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina at Tarboro, N. C., December 1-3, 1936.

tions, intermixed by migration, cross-fertilized each other. Egypt was the center of the first civilization according to some historians, it was a fertile section and capable of supporting a community by agriculture alone. Among other disires of the times, they sought high and low, through the ages, for some means, occult or known, of avoiding the inevitable disintegration of death or at least the postponement of its event.

As early as about the year 300 B. C. we find that Hindu personal hygiene concerned itself with such items as: (1) cleanliness, care of the teeth nails, hair, etc.; (2) diet—certain foods were advised, meat and alcohol being forbidden by religion but were not forbidden by the medical authorities; (3) exercise was advised; (4) elaborate restrictions were placed upon sexual intercourse, which was forbidden on the eighth, fourteenth, and fifteenth days of the month, and in the morning; (5) prophylactic measures were recommended such as an emetic weekly, a laxative monthly, and bloodletting twice yearly.

The beginning of the understanding of Preventive Medicine was probably first brought to attention by the great physician, Hippocrates; he first attempted to base theories of Preventive Medicine upon facts rather than suppositions.

There is unlimited historical material available on the development of Preventive Medicine as well as all phases of medicine, but I shall bring to your attention a few of the physicians that have made history in Preventive Medicine, and some of their accomplishments.

Thomas Sydenham (1624-1689) was among the first physicians to give priority to the direct clinical observation of the patient before him; every patient was dealt with as a sample of natural history, not morbid anatomy, not arguments drawn from autopsy, just on what the body of the living patient reveals or declares. Sydenham has been declared the forerunner of the modern science of epidemiology and for this reason he is mentioned as one of the pioneers in Preventive Medicine. He was not only an outstanding physician in his time but was also an epidemiologist.

Sir John Pringle (1707-1732), a physician of the British Army, should be mentioned as being the first physician to give a careful account of his observations on the causes of military disorders, and to insist on sanitary measures for the health of the soldier while in the battlefield and in cantonments, by which means he lowered to a large extent the ravages of disease. It was through Pringle's agency that the practice of regarding the hospitals in the field as exempt from attack by the enemy was first established. Hospitals were regarded as neutral territory. Pringle is said to be one of the first physicians to employ medical skill in the prevention of disease.

There is no more interesting chapter in history of the part played by physicians in the development of Preventive Medicine than that of the life of James Lind (1716-1794) and his work on scurvy. Lind spent the greater part of his life in the study of scurvy, and when, after his death, his measures for the prevention of this devastating disease were adopted by all nations, scurvy disappeared and troubled seafaring men no more. And for this reason, perhaps, Lind is so little remembered now. Lind was in the Naval Medical Service and his own description of the conditions at sea were from personal observations. He saw the overcrowded, damp, dark and airless cabins, their dietary on long voyages, and he describes the food as "putrid beef, rancid pork, mouldy biscuits and flour." He said, "the number of seamen in time of war who die by shipwreck, capture, famine, fire and sword is but inconsiderable in respect of such as are destroyed by the ship diseases, and by the usual maladies of intemperate climates." Lind had under his care around 300 to 400 cases of scurvy to treat daily, during the seven years war with Spain and France.

Little do we, as physicians, now realize what the physicians of centuries ago had to go through with just to learn that a young baby should have its daily orange juice as is recommended now by most physicians, and that seamen should have their fresh fruits when out at sea to prevent scurvy.

The history of the development of smallpox vaccination and Jenner's work is well known to all. An interesting feature that goes with most new developments in medicine was that Jenner's work was slowly accepted by the medical profession of his time and in later years it was found that smallpox vaccination did not produce a lasting immunity and this caused some to doubt Jenner's work; however, all credit is due to Jenner, and it is now known

that re-vaccination is necessary to maintain one's immunity to smallpox.

Time will only permit me to mention many outstanding names of physicians that have played major roles in the development of medicine and Preventive Medicine, such as Lord Lester, William Farr, Sir John Simon, Max Von Pettenkofer, Robert Koch, Sir Patrick Manson, Alphonse Laveran, Walter Reed, General William Cranford Gorgas, Herman Biggs, Lieutenant General Sir William Leishman, etc. All of these physicians have been listed as pioneers in Preventive Medicine by M. E. M. Walker in his book "Pioneers of Public Health."

Since this paper deals only with the practitioner's part in Preventive Medicine, we are not bringing to your attention many developments made in Preventive Medicine by others than physicians. Proper credit is due them, however, and there are many outstanding scientists who have played a major role in medicine such as Louis Pasteur and others.

Perhaps too much time in this paper has been devoted already to the history of Preventive Medicine but it was my intention to bring to you the fact that those physicians that are now doing Preventive Medicine, or as is commonly called Public Health, must and do recognize that the practicing physician has always been a leader in public health and still is. The first public health work was done by practicing physicians as part of their civic duty. When epidemics came, a physician was appointed in charge and as the epidemic subsided the physician's duties ceased as health officer.

The practicing physician is for most people still the key-man in all matters affecting health. It is to the physician that the patient has gone for all matters in health and disease. After the development of the germ theory by Pasteur, this new information took the prevention of some infectious diseases out of the hands of the physician and placed it in the hands of the community. This was logical, since it was by and through the community that the disease was spread, and since it was more feasible to prevent disease by and through the community than through the individual.

A large part of this problem has come about because of the change in population from rural to urban. The individual who lives alone and has his own food supplies such as milk, etc., garden and water supply, and whose only contacts are with the members of his own family, is less likely to suffer with contagious or infectious diseases than the individual who is living in one of our apartment houses and obtains his milk from farms miles away and this milk passes through many hands. The city individual also travels in a crowded street car, visits the movies, attends school and comes in contact with many persons from all sections of a county or state in a day's time.

Because of the new knowledge of infectious diseases, it has been necessary that health departments be established to see that pure milk and water supplies are furnished, that there is proper disposal of sewage, and the many other activities that properly belong to the health department have attention.

There are certain activities that are carried on by some health departments that are often questioned, such as the giving of vaccinations—as to whether it should be done by the practicing physician or by the health department.

During the period of inflation, or in the years of 1928 and 1929, few physicians were concerned with problems of Preventive Medicine. The physicians felt that all their time was occupied with the care of the sick. During the depression, or the period 1931 to 1933, many physicians began to consider the problem of immunization more seriously and one of the benefits of the depression seems to have resulted in some physicians realizing that they must practice Preventive Medicine increasingly in the future if they are not to lose the practice of curative medicine. Many physicians of the past have been too readily content to leave all of the practice of Preventive Medicine to public health officials.

The years of 1931 to 1933 also taught health officials that many activities they were doing rightfully belonged to the medical profession and because of reduced health budgets their attention was directed to educational functions to enlighten the public as to the possibilities of Preventive Medicine, and to urge people to go to the family physician for such individual Preventive Medicine as the family physician could well practice.

There are many plans being used throughout the states to stimulate in the physicians an interest in Preventive Medicine. In Detroit the plan seems to be working more or less satisfactorily in that the general practitioner participates in public health procedures and for those cases that cannot pay for their preventive work the city pays the general practitioner. This plan seems to have the good will

XUM

of the physicians as well as the cooperation of the health department, and this procedure is also a means of making every physician's office a health center in the community.

The place of the physician in a community health program must be a central one. Public health relies in the last analysis on medical science. The medical profession may be a little slow in approving of some new health department procedures at times but this spirit of conservatism and caution is necessary to prevent ridiculous errors or even serious mistakes.

The ideal in a health program would be for every physician to report every communicable disease with which he comes in contact and fortunately most physicians do report their more serious commuicable diseases fairly well. One of the greatest problems of a health department is to know where, when and under what circumstances a certain disease is occurring in a community. The control of tuberculosis, syphilis or gonorrhea, diphtheria, or any of the contagious diseases in a community is dependent upon the family physician. The health official needs the cooperation of the physician and the physician needs the help of the health official to carry on a satisfactory program of Preventive Medicine. There is no success for the public health official who ignores the medical profession in his community. Neither is the fullest measure of service possible to the physician who ignores his obligations toward Preventive Medicine.

The physician must have a central place in the public health program because he commands public confidence. This confidence in the family physician in a community is well brought about, for example, when a health worker advises certain recommendations as to immunization and these recommendations are contrary to what the family physician has advised. Then the patient will usually follow the family physician's instructions.

To me the practicing physician has as great opportunity to practice Preventive Medicine in his daily practice as has the health official. Since the beginning of medical practice, it has been the habit of physicians to advise their patients not only about treatment but about prevention. This has been a person-to-person relationship and this is necessary if an attack is to be made on such health problems as cancer, apoplexy, syphilis, diabetes, heart disease, nephritis, and the many other degenerating diseases, as well as the field of quackery.

To call to the family physician's attention certain activities of Preventive Medicine seems hardly necessary but, if I may, I will mention only a few examples. Some physicians are adopting the procedure of advising diphtheria immunization to their new born babies at about six months of age. This advice is given at the time of attending the birth and is followed up at the six months' period by a printed notice to the child's parents. How easy it would be to practically eliminate diphtheria if every mother were given this advice at the time of the birth of her child!

In those communities where smallpox vaccination is not required for a child to attend school, this could be advised without much trouble before the child enters school. Of course, the health departments are doing this type of work but after all the family physician could also do it if he cared to. The surgeon practices Preventive Medicine every time that he operates upon a suspected but not definitely diagnosed case of appendicitis, that is to prevent possible rupture and peritonitis, and we admit that is good Preventive Medicine.

In the matter of the control of syphilis, of which we have heard so much lately, it is one of the greatest opportunities for both the physician and the health departments to put in some up-to-date Preventive Medicine by looking for syphilis in every patient; make the Wassermann a routine test on every patient, just as much so as to take a new patient's temperature or feel his pulse. By this procedure syphilis cases could be greatly lowered. Certainly every expectant mother is entitled to a Wassermann as early as possible in her pregnancy, and it is our duty to see that she gets treatment if it is necessary, although it is often difficult to impress upon the patient the importance of treatment.

If every physician constituted himself a health officer for the families under his care, detecting and correcting physical defects, following up sources of infection in syphilis, in diphtheria, and in other infectious diseases, following up the contacts in cases of tuberculosis, and in general cooperating closely in every way with our health officials to prevent disease, the medical profession could exert a wonderful power in the field of Preventive Medicine.

In this paper we have attempted to bring before you some of the activities that have made the gen-

eral practitioner a leader in Preventive Medicine, in the past, at present, and the physician of the future must be increasingly a practitioner of Preventive Medicine. Obviously this involves new relationships to the public and to the health officials.

May I summarize this paper by using a statement that was emphasized by the late Doctor William H. Welch of John Hopkins University: "There can be no real and lasting success of efforts to promote the health of the people and to prevent disease without the active sympathy, support and participation of the medical profession."

REFERENCES

1. *A. M. A. Bulletin,* October, 1936.
2. Public Health and the Practicing Physician, Leathers, W. S. *New Orleans Med. and Surg. Journal,* p. 387-394, Vol. 85, No. 6, December, 1932.
3. M. E. M. Walker, "Pioneers of Preventive Medicine," The Macmillan Company, 1930.
4. Sir George Neuman, "The Rise of Preventive Medicine," Oxford Press, 1932.
5. The Physician's Place in the Health Program, W. W. Bauer, *J. A. M. A.,* August 15, 1936, p. 485, Vol. 107.
6. The Physician and Public Health Officialdom, Morris Fishbein, *American Journal of Public Health,* Vol. XXIII, No. 12, December, 1933.
7. Smillie, W. G., Public Health Administration in the U. S., The Macmillan Company, 1935.

Correspondence

Rabbit Ovulation Test for Pregnancy.

Richmond, Virginia,
March 30, 1937.

To the Editor:

Of late I have had occasion to hear of considerable dissatisfaction among Richmond physicians with the rabbit ovulation test for pregnancy. Although I have not run these tests for several years, I believe I was probably the first in this State to run a considerable number. When I started these tests I decided to charge only $5.00 because we were in the depths of the depression and good rabbits could be secured for from 50c to 75c. The present charge in the Richmond hospitals is still $5.00, but I consider that this is inadequate due to the increase in cost of rabbits and feed and will result in increasing dissatisfaction with this test. The usual practice at present is to use arbitrarily a $1.00 rabbit, which is generally one about four months of age. This age rabbit is too insensitive. It is advisable to use a 6- or 7-months old rabbit, or one which has had a litter. This automatically insures that the rabbit is old enough. The rabbit then should be isolated *by the laboratory* for at least one week and preferably two, since I have seen too many pregnant rabbits which had been guaranteed by local dealers to be isolated virgins. In fact, my seeing one a few days ago at a local hospital was the final stimulus to write this letter. This will mean that the laboratory will have to have rabbits constantly on hand, instead of ordering one from a dealer after a specimen is received for testing. Naturally, this increases the cost of the test. I consider that a laboratory which does not have adequate facilities for keeping rabbits on hand has no business in running this test, any more than it could run a blood sugar without the necessary chemical equipment.

When each year this test is used as a student laboratory experiment, I have found it essential to order rabbits from Philadelphia to insure good material. These older rabbits cost at least $1.75 plus express charges. At least 15 c.c. of morning urine should be injected, and recently one investigator recommended 25 c.c. in one injection. Since occasionally the rabbit dies overnight, the remainder of the sample must be detoxified with anaesthetic ether and a second rabbit injected, which is an added reason for extra rabbits being immediately available.

Because of these factors, so long as the attempt is made to keep the cost of the test to $5.00 the tendency to buy rabbits as cheaply as possible and not until needed, will continue. This I am sure will result in a marked diminution in the accuracy of the test, which when correctly done should give an accuracy of about 99 per cent. It must be remembered that this is merely a test for viable placental tissue and related types in contact with the circulation. Positive results in pregnancy are not assured until about 5 days after the end of the first missed menstrual period, although usually it can be diagnosed earlier. This test is not sensitive enough for diagnosis of teratoma testis, when the rat ovulation test must be used to obtain quantitative results, as is also desirable for hydatidiform mole and chorionic epithelioma.

Therefore, I suggest, to insure that the material and procedure may be of the best, that the cost of this test in Richmond be raised to $10.00. Although

XUM

it is admirable to keep medical costs low, it becomes reprehensible when the charge is insufficient to insure optimum results.

I trust that I will not be accused of any ulterior motives in suggesting this, since I have not run this test for some years and have no idea of ever doing so in the future.

Respectfully,

R. J. MAIN,

Associate Professor of Physiology,
Medical College of Virginia.

Miscellaneous

Findings of the Division on Public Health and Medical Care of the Virginia Conference of Social Work, April 10, 1937.

WHEREAS, (1) It is known that syphilis is one of the most common of diseases, recent surveys establishing the fact that there are approximately 125,000 cases in the State of Virginia, and,

(2) It is also well known that syphilis is one of the most pernicious of diseases because of its effect in producing physical, economic and emotional disability, since approximately ten per cent of all insanity, ten per cent of heart disease, many cases of blindness, and a large proportion of still births and infant deaths are due to this infection, and,

(3) The control of syphilis is an essential part of a public health program, because of the communicability of this disease and because of its far-reaching social and economic effects. A large proportion of pauperism, dependency, and insanity which must be cared for at public expense is an outgrowth of the devastating effects of syphilis, and,

(4) There now exists sufficient scientific knowledge which, if applied, can "stamp out" the disease, and a syphilis control program probably offers more return for the money spent than any other phase of public health work.

THEREFORE, It is recommended:

First, that the program of the State Health Department for the control of venereal diseases in Virginia and the recommendations of Dr. L. E. Burney of the U. S. Public Health Service for the control of venereal diseases in Richmond be endorsed as authoritative, practical and necessary.

The major aspects of such a program, for which funds must be made available, include: (1) Treatment facilities, (2) Distribution of free drugs, (3) Laboratory facilities, (4) Standardized treatment, (5) Professional assistance to physicians, (6) Epidemiology, including case finding and case holding, which involves adequate follow-up service through trained nurses or medical social workers. Special efforts should also be made to assist pre-natal clinics, because here will be one of the most potent points of attack, (7) Morbidity and mortality reporting, (8) Diagnostic centers, (9) An educational program for laity, and (10) Prophylaxis.

Second, that the general medical profession accept the major burden of eventually eradicating syphilis, especially the task of instructing individuals with the disease regarding the nature of their infection, the importance of early and continuous treatment, and the favorable results which follow adequate therapy; also of cooperating with epidemiological activities for investigating sources of infection and contact. This cooperation with the epidemiological aids should continue throughout the treatment by frequent consultation with social or health workers and repeated encouragement of the patient.

Third, that organized public health facilities in the State make a definite effort to secure larger appropriations which will allow them to take a more active leadership in the program. The influence of a well-informed public in developing understanding and support of this program on the part of members of the local and State legislative bodies should be utilized in securing necessary appropriations for the development of an adequate program of venereal disease control throughout the State.

ENNION WILLLIAMS, M. D., *Chairman*
R. W. GARNETT, M. D.
LOUISE GALVIN, M. D.
BASIL B. JONES, M. D.
MISS MARY ALICE RILEY
MISS MIRIAM H. DETTELBACH, *Secretary*

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for

the month of March, shows the following cases compared with the same month in 1936.

	1937	*1936*
Typhoid and Paratyphoid	14	14
Diphtheria	58	62
Scarlet Fever	90	232
Measles	902	642
Meningitis	50	68
Poliomyelitis	2	1
Rocky Mountain Spotted Fever	1	0
Typhus Fever	0	0
Undulant Fever	1	1
Tularaemia	0	1
Smallpox	1	0

SCHOOL SANITATION

Through its bureau of rural health, the Department for a number of years has been active in procuring sanitary equipment for rural schools. In this activity, the State Board of Education has cooperated effectively. As a result, modern facilities have been installed in hundreds of rural schools buildings. However, the Department recently indicated to the Superintendents of Schools that approved installations are but the initial step.

The Department's field sanitation personnel report that an increasing number of teachers and others charged with school sanitation maintenance are realizing that neglected standard equipment is hazardous to child life and community health. Nevertheless, carelessness in some quarters still makes the maintenance situation a real problem. Consequently again working in close cooperation with the Board of Education, the Department is emphasizing the responsibility of rural teachers in this connection.

The school sanitation problem obviously will continue to represent a public health concern until an intelligent and sustained interest is realized by those individually charged with school environmental conditions.

COOPERATION IN THE CANCER CAMPAIGN

The Virginia Federation of Home Demonstration Clubs, with a membership of 16,000 rural women, through the State Department of Health, recently offered its active cooperation in the women's nationwide cancer campaign.

With the degenerative diseases of middle age and older taking an ever increasing toll, and with the preventive phases of such conditions being based for the most part upon a reasonable personal interest, it is believed that this group action represents a favorable indication of a new health attitude.

1937 CHILD HEALTH DAY

In cooperation with the U. S. Children's Bureau, the State Board of Education, the local health departments and schools, the State Department of Health again this year is urging the proper observance of Child Health Day.

Suggestions for programs, including material prepared by federal and state health organizations, already have been forwarded by local health departments and the State Department of Health to a large number of groups interested in this health conservation activity.

Reports received to date indicate that the 1937 celebration will exceed those previously observed.

ACTIVITIES OF THE BUREAU OF CHILD HEALTH

Within the past few months, a field representative of the Department's bureau of child health has organized activities through the Cradle Roll chairmen in ninety-one different churches of several counties. The plan involves the education of mothers of preschool children in the public health phases of child health conservation.

This work is limited to public health principles. Needless to say, treatments, corrections, and professional advice remain with the private practitioner.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.

President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.

Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.

Chairman, Press and Publicity—MRS. W. AMBROSE MCGEE, 4107 Kensington Avenue, Richmond.

Auxiliary to the Accomac-Northampton Medical Societies.

The society held an interesting meeting on April 6 at the home of Mrs. J. Walker Jackson of Machipongo. A gift of pillows was made to the Northampton Accomac Hospital. Also a donation was given towards the maintenance of a bed in a State tuber-

culosis sanatorium for the use of a physician or his dependent.

Some interesting notes were read on the mid-winter board meeting of the Auxiliary to the Medical Society of Virginia, held at Norfolk. An instructive talk was made on the campaign being launched by the Virginia Association for the early diagnosis of tuberculosis.

After the business meeting a social period with the serving of delicious refreshments was greatly enjoyed.

The next meeting is to be held at the home of Mrs. John W. Robertson of Onancock, on Tuesday, October 5.

MRS. O. R. FLETCHER,
Secretary.

Woman's Auxiliary to the Richmond Academy of Medicine

The Auxiliary has been progressing nicely. This year we have been meeting in the homes of the different members instead of in the Academy building. Our meetings are held in the mornings at eleven o'clock on the second Fridays of the month from September through June, and only last one hour.

This month we had our annual card party at the John Marshall Hotel and, after taking out expenses, we have cleared so far over $200.00.

The Auxiliary has already paid its obligations for the year beginning October 1936 through October 1937, that is, has sent its check to the Academy of Medicine for the specimen jars for the Pathological Museum in the Academy building, a check to the State fund for the bed in a State T. B. sanatorium for a doctor or his dependent, a check to the Crippled Children's Hospital for the three beds the Auxiliary has endowed in the new tubercular ward at the hospital. The hospital board has had name plates made for the beds and we will from time to time visit the occupants of the beds.

We have had very interesting speakers so far this year, among whom have been: Mrs. Fred Alexander, President, Federated Women's Clubs of Virginia; Mrs. J. L. Blair Buck, Budget Chairman, National Federation of Women's Clubs; Mrs. J. Scott Parrish, of the Crime Committee; Mrs. Addison Lewis, Chairman of Cancer Control Committee for Richmond; and Mr. Dave Satterfield, Richmond attorney.

(MRS. W. AMBROSE) LOIS L. MCGEE.

A. M. A. Auxiliary.

Some very interesting plans are being made for the ladies attending the A. M. A. meeting to be held in Atlantic City, June 7 through 11. We are expecting quite a number of the doctors' wives this year since the meeting is so close home.

Hygeia.

One phase of the work with *Hygeia* has been very successfully carried out. During the months of December and January eighty-one subscriptions or renewals were secured from physicians. According to the plans adopted at Staunton last October, the rest of the year is to be devoted to securing subscriptions from laymen. These subscriptions do not carry the half rate extended to physicians, but do give the Auxiliary securing them a commission. It is in this field that most can be done in educating the public to seek adequate medical care.

It is said that a writer as far back as the middle of the nineteenth century once complained, "The external appearance of the human body is necessarily familiar to us all. Its internal structure, however, and the manner in which its different functions are performed, are not understood as they ought to be by the generality of people." The publication of *Hygeia* was undertaken in order to offset those who would profit unfairly by this lack of knowledge of the "generality" and to bring about a clearer understanding of healthful living and the control of disease. The first issue was published in April 1932.

This magazine gives authentic information and "helps clear the mind muddled with misinformation." All advertisements are carefully checked before publication and the statements can be said to be entirely dependable. The January issue carried an article on the background of syphilis control.

Hygeia, the mythological Goddess of Health, was the daughter of Aesculapius, the patron of the physician. The auxiliaries to the medical associations, the "daughters of the physicians," are asked to further the interests of the parent organizations by fostering this magazine. No more direct aid could be given than by educating the public to appreciate healthful living and the control of disease. " . . . we have nothing else to offer which gives that feeling of partnership with our profession that working with *Hygeia does.*"

The motto set by the national chairman is: "Every member a subscriber, or responsible for a subscription." With eighty-one subscriptions already to our credit and two hundred ten members on the roll, this goal can be easily reached in Virginia.

Truth About Medicine

In addition to the articles previously enumerated the following has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

Eli Lilly & Co.

Tetanus Toxoid, Alum Precipitated (Lilly).

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Diphtheria Schick Test Toxin, Diluted Ready for Administration—Gilliland (New and Nonofficial Remedies, 1936, p. 409).—This product is also marketed in packages containing sufficient material for 100 tests. As a means of control, the Schick Test Control is supplied in packages containing sufficient material for ten, twenty-five, fifty and 100 control tests. The Gilliland Laboratories, Inc., Marietta, Pa.

Diphtheria Toxoid, Alum Precipitated (Refined) (New and Nonofficial Remedies, 1936, p. 393).—This product is also marketed in packages of one 0.5 c.c. vial (one immunization); ten 0.5 c.c. vials (ten immunizations); one 5 c.c. vial (ten immunizations). The Gilliland Laboratories, Inc., Marietta, Pa.

Propaganda for Reform

Insulin Shock Treatment for Schizophrenia.—The amazing results already reported in some cases in which the insulin shock treatment has been applied in schizophrenia have resulted naturally in a certain amount of premature enthusiasm in relationship to the use of the method. It has been widely exploited in the press with the statement that it constitutes a cure for what has formely been considered an incurable disease. As a result, the Committee on Public Education of the American Psychiatric Association has considered it worth while to issue a public statement on the present status of this new method. The statement says, in part: "It is hoped, and may prove to be a fact, that the so-called insulin shock treatment for dementia praecox will find a useful place among the forms of treatment for dementia praecox, but its exact value has yet to be determined and it can be definitely stated that it is not a specific, nor by any means a cure for all cases of dementia praecox. . . . It is, however, at the present time receiving careful study in the New York and Massachusetts State Hospital systems, Bellevue Hospital, New York, and other scientific centers, but it should not be undertaken except by those adequately trained to meet the dangers connected with the treatment." (*J. A. M. A.*, February 13, 1937, p. 560.)

Protamine and Insulin Preparations.—From its introduction fourteen years ago, insulin underwent relatively little modification until Hagedorn and others of Denmark showed that the blood-sugar-lowering action of insulin was prolonged when it was combined with protamine. Subsequently, Scott and Fisher, working at the University of Toronto, found that the addition of a zinc salt to a protamine and insulin mixture enhanced the prolongation effect of insulin in diabetic patients. Various investigators in collaboration with the University of Toronto group have aided in the development of a pharmaceutically improved product of insulin, modified by the presence of protamine and zinc, which may be dispensed in a single vial. This product has now been designated "Protamine Zinc Insulin." Protamine Zinc Insulin does not replace insulin (unmodified) in all cases or under all circumstances. Protamine Zinc Insulin may be used alone or used concurrently with the administration of unmodified insulin; or in some cases unmodified insulin may be used to advantage without employing Protamine Zinc Insulin. For the sake of consistency in nomenclature and to avoid confusion in medical literature, physicians and investigators should bear in mind distinctions between the following terms: Insulin as a term for the unmodified insulin of commerce. Protamine Insulin as a product to which no zinc salt has been added. Protamine Zinc Insulin for the product modified by the addition of protamine and a zinc salt, with other substances. (*J. A. M. A.*, February 20, 1937, p. 644.)

Book Announcements

Operative Surgery. Volumes I and II. By J. SHELTON HORSLEY, M. D., LL.D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va., and ISAAC A. BIGGER, M. D., Professor of Surgery, Medical College of Virginia, Surgeon-in-Chief, Medical College of Virginia Hospitals, Richmond, Va. With Chapters on Special Subjects by C. C. Coleman, M. D., F. A. C. S.,; John S. Horsley, Jr., M. D.; Austin I. Dodson, M. D., F. A. C. S.; and Donald M. Faulkner, M. D. Fourth Edition. Pages 1387. In two octavo volumes. With more than 500 new illustrations added by Miss Helen Lorraine. St. Louis. C. V. Mosby Company. 1937. Cloth. Price, $15.00.

The present monumental work is the result of evolution being the fourth edition of Horsley's *Operative Surgery* first published in 1921.

Owing to the development of the various specialties, Dr. Horsley has associated with him Dr. Isaac A. Bigger as co-author, and Dr. C. C. Coleman, Dr. John S. Horsley, Jr., Dr. Austin I. Dodson and Dr. Donald M. Faulkner as contributors. The numerous beautiful illustrations are the work of Miss Helen Lorraine. All the foregoing are residents of Richmond and it is not too much to say they have put the city on the map as one of the unquestioned medical centers of the country.

Only one who has attempted to write himself can appreciate the labor that has gone into the making

of these two volumes, but the time and thought expended has been fully justified by the results achieved and the authors have earned the thanks of the profession for a notable addition to surgical literature.

The work is divided into seventy-six separate chapters with a list of references at the end of each chapter. As stated in the preface the methods described are those which either have been actually used by the author who writes of them or seem to him to be the best for the lesion under consideration. Many new operative procedures are described which have not hitherto been published in a book, but none has been recommended which does not seem sound.

Horsley and Bigger's *Operative Surgery* should be on the desk of every busy surgeon. It deserves to occupy the place filled by Sir Frederick Treves' *Operative Surgery*, which was the recognized authority fifty years ago. STUART MCGUIRE, M. D.

Diseases of the New Born. By ABRAHAM TOW, M. D., New York. Oxford University Press. 1937. Octavo of xviii-477 pages., Illustrated. Cloth. Price $6.50.

The new-born infant, as Tow states in his preface, is a fascinating problem. And because of the decline in the national birthrate it is a most important one. Too many babies are being lost in the neonatal period.

With the exception of the first chapter, which is rather tedious reading because of the anatomical and laboratory studies reported, Diseases of the Newborn is an exceptionally well written and instructive book. It should be of great value to the general practitioner upon whose shoulders most of the neonatal care falls.

Following the first chapter are two on infant feeding and premature infants. Simple milk mixtures are emphasized. In the chapter on birth injuries, the obstetrical measures and procedures advocated show that the author has conversed with obstetricians and read obstetrical literature in the preparation of his work.

The systems are considered in the usual order. Your reviewer cannot agree with the statement (p. 258), "Oxygen and oxygen alone is the sole requisite in the treatment of asphyxia during the first few days of life, asphyxia resulting from the incidence of birth." Although the studies of Eastman and his associates seem to bear out the truth of this statement, clinical experience tends to prove the necessity of small percentages of CO_2 as well. Tow recommends the giving of mother's blood intramuscularly after all cases of difficult delivery. Perhaps it would be a good policy to do the same after all deliveries.

Much of the charm and instructiveness of this octavo of 477 pages is because of the opinions of the author which are expressed freely. By reason of his wide experience and his close and intensive study of the newly born they are usually sound. An adequate bibliography follows each chapter.

The general practitioner, the obstetrician, and the pediatrist will find much of value in this book.

WALTER MCMANN, M. D.

The Practice of Medicine. By JONATHAN CAMPBELL MEAKINS, M. D., LL.D., Professor of Medicine and Director of the Department of Medicine, McGill University; Physician-in-Chief, Royal Victoria Hospital, Montreal; Formerly Professor of Therapeutics and Clinical Medicine, University of Edinburgh; etc. St. Louis. The C. V. Mosby Company. 1936. Octavo of xv-1343 pages. With 505 Illustrations Including 35 in Color. Cloth. Price, $10.00.

This treatise on internal medicine is designed not only for the medical student, but for the practitioner as well. The general arrangement of the book follows the usual classification of diseases as made by other authors on this subject—namely, infectious, deficiency, those due to abnormal environment and diseases of the various systems of the body.

The best section, in the opinion of the writer, is that part which concerns pulmonary disease, and the poorest is the section on diseases of the gastro-intestinal tract. The book differs from most text-books on medicine in two important respects. The first of these is the special attention given to the explanation of symptoms—pathological physiology; the greater part of these comments are written in a simple and concise manner. The second important difference is the lavish use of illustrations which, as a whole, are far better than the reviewer has ever seen in a book of this kind.

While this text, like all others which deal with medical subjects, contains statements that are debatable, it probably contains as few such statements as it is possible to make. It is the reviewer's opinion that the wide experience and uncanny clinical judgment of the author, plus his ability to write in a simple, direct and easily readable manner have been combined in such a way that he has produced a valuable addition to the already numerous text-books of medicine. HARRY WALKER, M. D.

Virginia Medical Monthly

Founded by LANDON B. EDWARDS, M. D., April, 1874
Owned by MEDICAL SOCIETY OF VIRGINIA since November, 1919
WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

PUBLICATION COMMITTEE
WYNDHAM B. BLANTON, M. D., Richmond, *Chairman*
H. B. MULHOLLAND, M. D., University H. A. TABB, M. D., Gloucester

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Monthly, 1200 East Clay Street, Richmond, Va.

This journal is not responsible for the opinions and statements of its contributors.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance. Single Copies 25c.

VOLUME 64 MAY, 1937 No. 2

Editorial

Red Cat.

The June issue of the VIRGINIA MEDICAL MONTHLY will carry a sympathetic review by Dr. William B. Porter of *American Medicine.*

American Medicine is a comprehensive two volume report of the inquiry of the American Foundation into the American doctor's ideas concerning "the present status of American medicine, and on the problem of making 'adequate' medical care available to the large part of the population that now fails to get it." Dr. Porter is the Professor of Medicine in the Medical College of Virginia. He, Dr. J. Shelton Horsley and Dr. E. Pendleton Tompkins constituted the Virginia members of the medical advisory committee.

However searching and however comprehensive the inquiry, one cannot help feeling as one turns the pages of these tomes that the issue, important as it is, has been talked to death in the last two years, and one wonders whether those who are at present in the saddle really care what doctors think about the problem of medical care for the American people. The opinions of lawyers were not consulted when changes in the Supreme Court were thought to be necessary. The voice of business was not heeded when the N. R. A. was superimposed upon our economic structure. What then encourages one to hope that the thousands of singularly sincere and spontaneous statements which comprise the body of *American Medicine* will be considered when the time is judged ripe by the powers that be to impose some type of state medicine upon this country? Many of us think we know what is in the mind of those who have it in their power to alter completely our American way of medical practice, and we believe that when the time is ripe for them to release the cat from the bag, the cat will be red.

Blindness.

Blindness has appealed to human sympathy at least since the day when Jesus of Nazareth stretched out his hand to heal the man born blind. One of the oldest eleemosynary societies in the world, Quinze-Vingts, was established in France six hundred years ago by St. Louis to care for those who had lost their sight crusading with him in the Holy Land. Following the World War there was a universal quickening of interest in blindness and tremendous effort was excited everywhere to emancipate those who sat in darkness. In this country we are chiefly indebted to the National Society for the Prevention of Blindness for keeping alive interest in this widespread social problem. We say widespread without exaggeration for there are no less than 75,000 blind persons in the United States alone. The Society is at present engaged in an active campaign to arouse interest and disseminate information, for one of the cures of blindness is knowledge.

It desires to impress the fact that blindness is largely preventable, a fact which is apparent when we recall how important as etiological factors are gonorrhoea, syphilis, tuberculosis, diabetes, malnutrition and accidents. There are said to be no less than 200,000 eye injuries sustained each year by American workers in industry. The principle of prevention has already been acted upon in the case of gonorrhoea. When the Belgian Doctor Crede demonstrated the relation between gonorrhoea and ophthalmia neonatorum, 28 per cent of the children in our schools for the blind were there because of "babies' sore eyes." The consistent and universal use of silver salts in the eyes of the new-born has reduced the incidence of ophthalmia neonatorum 75 per cent. It is believed that a comparable reduction in other forms of blindness can be expected when an appreciation of its preventable character is generally understood and acted upon.

Enemies Without.

A recent issue of the United States Public Health Report makes plain the danger to which we as a people are constantly exposed as a result of changing modes of travel.

A Seventeenth Century authority believed that "the mortality which is imported to the country . . . is chiefly caused by the pestered ships." The danger of infection from ships continues down to the present day, and there will probably always be a need for quarantine stations. While measures directed against the human carrier have attracted chief attention, a persistent fight to rid our ships of animal conveyors of disease has gone on. In the case of the rat the battle appears to be almost won. "The Public Health Service believes that the problem of overseas transmission of bubonic plague is almost solved. This announcement means little to a generation that is unfamiliar with the excitement and potential danger that accompanied the occurrence of this dread disease in San Francisco, Seattle, and New Orleans in the early part of the present century. However, to commercial interests, to the cities that have been called upon to pay handsome tributes in cash for rat-proofing, and to the public health interests that have engaged in expensive and prolonged battles against this disease, this statement is received with deep satisfaction." These results have been achieved through the fumigation and rat-proofing of vessels, through international certification and intensive inspection. A recent survey showed only 8.4 per cent of ships entering Atlantic ports to be rat infested. Ten years ago 50 per cent of vessels entering these same ports harbored dangerous rat populations.

But no sooner are the doors closed to one invader than another presents itself. The international airplane service introduces the new menace. The mosquito, like the rat, once sailed to America in boats, breeding in the open fire buckets, but now, like man, it makes use of every latest invention and flies long distances through the air with the greatest of ease in airplanes. Inspections of airplanes arriving at Miami, Florida, from South America show the presence of a considerable variety of mosquitoes of tropical origin. Although no yellow fever mosquitoes have been demonstrated as yet there is no reason why the *stegomyia fasciata* may not gain admission to this country in this way. In the past many yellow fever epidemics could be traced to the ships that lay anchored off the wharfs of our eastern cities. Will some future epidemic be traced to some airport where airplanes from some tropical port land? The Public Health Service is determined that this shall not happen.

Treatment of Type III Pneumonia.

So far serum therapy has not been successful against Type III pneumonia. This type is usually regarded as the most fatal. Any therapy which promises to lower the mortality from this virulent invader is worth trying. Ralph R. Mellon of the Western Pennsylvania Institute of Pathology at Pittsburgh reports the reduction in the death rate of pneumonic rats infected with Type III pneumococcus from 85 per cent to 23 per cent when they were given the dye prontosil. In a limited number of human pneumonia patients treated with this chemical, correspondingly favorable results were gotten. Both prontosil and prontylin would therefore seem to deserve trial on a wider scale.

Why?

Under the title *Why We Do It,* Edward C. Mason, Professor of Physiology at the University of Oklahoma, gives "an elementary discussion of human conduct and related physiology." The book states in simple form what has been stated many times before by many authors under many captions, and one finds it well done if one measures it by the

author's own words on education, "by the amount of ground covered and not by the depth to which the ground has been cultivated." If the question occurs: Does the author tell the informed reader too little and the uninformed reader too much? one must grant that he frequently tells it well. For example "Personality," he contends, "represents the sum total of all one has with which to meet the problems of life; it includes height, weight, sex, education, halitosis, dandruff, the emotions, and all those qualities which make for success or failure of the individual." He thinks "psychology has surrendered its soul to theology, has lost its mind to metaphysics, has been knocked unconscious by science, and has now come to physiology to interpret its behavior." The "discussion is not presented with a desire to educate the psychologist, the psychiatrist, or the physiologist" but is "dedicated to parents and teachers in the interest of better citizenship." It is noteworthy for crystal clarity and a common sense point of view.

Correspondence.

A communication from Dr. Rolland J. Main, Assistant Professor of Pharmacology and Physiology in the Medical College of Virginia, which appears in this issue of the MONTHLY under "Correspondence," is an example of the type of letter this publication welcomes. Everyone, we are sure, will agree with Dr. Main in the position he takes.

Department of Clinical and Medical Education of the Medical Society of Virginia

Obstetrics and Gynecology.

The Postgraduate Course offered in Buckingham, Caroline and Louisa Counties was completed on April 17. Meetings for these counties were held in Dillwyn, Bowling Green and Mineral. Seventy per cent of the physicians of the three counties attended. Throughout the same period meetings were also held for a small group of interested doctors on Church Hill, Richmond.

During the five weeks from April 19 to May 22, Dr. Shamburger will offer his course in Norfolk, Newport News, and Williamsburg.

Subsequently, during the period from May 24 to June 26—the course will be given in the west central part of the State.

Pediatrics.

Dr. Arena has just completed a course in Amherst, Appomattox and Campbell Counties. Meetings were held in Altavista and Lynchburg, separate meetings being held in Lynchburg for white and colorded doctors. Nineteen white doctors, six nurses and five colored doctors took the course.

Dr. Arena read a paper at the meeting of the Lynchburg Academy of Medicine on April 5.

From April 19 to May 22 the Pediatric course will be given in Albemarle, Augusta and Rockingham Counties. The meetings for these counties will be held in Charlottesville, Staunton and Harrisonburg, respectively.

Approval of Medical Societies.

Since many societies do not meet frequently, it is suggested that those wishing to avail themselves of either course, whether now or later, take formal action at their next meeting. This will greatly facilitate the making of final arrangements, since the courses are offered nowhere without the approval of local medical groups.

Postgraduate Clinics.

The Nineteenth Postgraduate Clinic at the University of Virginia Hospital will be held on May 7. Further information about the clinic will be given later.

Postgraduate Clinics of the Medical College of Virginia.

The postgraduate clinics of the Medical College of Virginia for 1937 were given on the afternoon of March 24, and the full day on March 25. The attendance was very good and there was a tendency on the part of the doctors this year to stay through the entire clinics.

The program was given over to the discussion of the venereal diseases with special emphasis on syphilis. On the nights of these two days, the eighth

XUM

annual Stuart McGuire lectures were given by Dr. J. Earle Moore, physician in charge of the syphilis division of the medical clinic at Johns Hopkins Hospital.

In addition to Dr. Moore, assisting the faculty of the Medical College were: Dr. Dudley C. Smith, professor of syphilology at University of Virginia, Dr. Otis L. Anderson of the United States Public Health Service but now with the Virginia State Health Department, and Dr. L. J. Roper, associate director of the Bureau of Venereal Disease Control of the Virginia State Health Department.

This year the pharmacists were invited to take part in the program and Mr. H. G. Whitehead, president of the Virginia Pharmaceutical Society, spoke on some problems that the pharmacist has in the venereal disease program. His talk was well received.

A new feature in this program was the appointment of a findings committee of five physicians who brought in a report at the round table discussion period. This report (given below) was received by the clinic group and passed as presented by the committee.

In addition to members of the staff of the Medical College of Virginia, some junior and senior medical students, several medical social workers, and a number of nurses, the clinics were attended by the following physicians:

Dr. H. S. Baker, Norfolk.
Dr. G. B. Barrow, Staunton.
Dr. R. D. Bates, Newtown.
Dr. R. E. Booker, Lottsburg.
Dr. W. A. Brumfield, Farmville.
Dr. W. W. S. Butler, Roanoke.
Dr. B. L. Carlton, Newport News.
Dr. C. S. Credle, Colerain, N. C.
Dr. J. H. Cutchin, Whitakers, N. C.
Dr. H. L. Dean, Petersburg.
Dr. H. W. Decker, Richmond.
Dr. L. H. Denny, Portsmouth.
Dr. H. A. Eldridge, Benson, N. C.
Dr. T. B. Ely, Jonesville.
Dr. N. Faison, Winton, N. C.
Dr. R. S. Fitzgerald, Richmond.
Dr. William Flegenheimer, Guinea.
Dr. F. P. Fletcher, Richmond.
Dr. Richard W. Fowlkes, Richmond.
Dr. R. R. Garvey, Winston-Salem, N. C.
Dr. Thomas F. Gill, Richmond.
Dr. T. L. Gemmill, Petersburg.
Dr. E. J. Haden, Ore Bank.
Dr. J. M. Hitch, Charlottesville.
Dr. R. L. Hillman, Emory.
Dr. L. H. Hoover, Clarksville.
Dr. R. F. Housen, Charlottesville.
Dr. F. M. Howell, Hopewell.
Dr. W. P. Jackson, Roanoke.
Dr. D. W. Kelly, Jr., Culpeper.
Dr. R. D. Kimbrough, Norfolk.
Dr. Ben. H. Knight, Surry.
Dr. John W. Martin, Roanoke Rapids, N. C.
Dr. E. R. Moorman, Kilmarnock.
Dr. A. E. Murray, Beaverdam.
Dr. W. J. Ozlin, South Hill.
Dr. C. H. Patterson, Lynchburg.
Dr. W. H. Paine, Charlottesville.
Dr. Marshall J. Payne, Staunton.
Dr. Carl I. Pirkle, Petersburg.
Dr. T. G. Pretlow, Chester.
Dr. R. H. Pretlow, Suffolk.
Dr. R. L. Raiford, Franklin.
Dr. C. B. Ransone, Roanoke.
Dr. B. A. Rice, Forest.
Dr. Irvin Rifkin, Richmond.
Dr. W. C. Rosser, Lynchburg.
Dr. R. R. Simmons, Winston-Salem, N. C.
Dr. J. C. Sleet, Norfolk.
Dr. James W. Smith, Gloucester.
Dr. W. R. Tyson, Norfolk.
Dr. William J. West, State Farm.
Dr. J. W. Wilkins, Mount Olive, N. C.
Dr. N. G. Wilson, Norfolk.
Dr. J. A. Wright, Doswell.
Dr. W. C. Yeatts, Danville.

Report of Findings Committee of the Post-Graduate Clinics of the Medical College of Virginia.

We urge the profession to take advantage of new dark field service to be offered in the near future by the State Health Department.

We, as clinicians, have found this clinic very valuable to the medical profession and recommend that the Medical Society of Virginia and the two medical colleges put on a similar program at strategic locations in the State through the local medical societies, and that the programs consist of practical and informative papers.

We request that, if possible, the Stuart McGuire lecture committee obtain permission from Dr. Moore to use his McGuire lecture in the proposed clinics to be held throughout the State.

We recommend to all physicians that they adopt as the minimum of adequate treatment the proposed schedules of the Clinical Cooperative Group,

and we recommend that these schedules be furnished by the State Health Department.

We appreciate and realize the necessity of cooperation with the Virginia Pharmaceutical Association in this campaign for the control of venereal diseases in Virginia and suggest that they have this subject presented at their next annual meeting in order that they may be in a position to suggest their best method of cooperation.

We, as visiting physicians, wish to thank the Medical College of Virginia for arranging this instructive program.

R. W. FOWLKES, *Chairman*
R. L. RAIFORD
F. P. FLETCHER
H. W. DECKER
E. R. MOORMAN

The above report will be considered at the next meeting of the Department of Clinical and Medical Education.

Proceedings of Societies

The Annual All-Day Clinic,

Sponsored by the Norfolk County Medical Society, was held Monday, March 29th. The attendance was perhaps the largest recorded since the inauguration of this program.

Dr. Louis Hamman, Associate Professor of Medicine, Johns Hopkins University, was the guest speaker of the evening session held at the Society Hall. Dr. Hamman also participated in the program earlier in the day, holding a clinical conference at St. Vincent's Hospital.

The committee in charge of the clinic was Dr. C. Carroll Smith, chairman, Dr. A. B. Hodges, Dr. B. E. Harrell, Dr. M. H. Todd, and Dr. Jas. V. Bickford.

Southwestern Virginia Medical Society.

At the meeting of this Society, held in Pulaski, April 8 and 9, there was a registered attendance of seventy-five members. Dr. Emil Novak of Baltimore was the invited guest and spoke on "The Endocrine Basis of Gynecological Organo-therapy." The program consisted of a symposium on "Treatment," in which the following participated: Dr. H. W. Bachman, Bristol; Dr. F. H. Smith, Abingdon; Dr. T. K. McKee, Saltville; Dr. W. P. Jackson, Roanoke; Dr. R. M. Hoover, Roanoke; Dr. Mack I. Shanholtz, Bristol; Dr. Guy C. Richardson, Bristol; and Dr. J. D. Willis, Roanoke.

The following new members were elected to the Society: Dr. Sheldon D. Carey, Christiansburg; Dr. Wm. M. Gammon, Bristol; Dr. C. C. Hatfield, Saltville; Dr. H. M. Kelso, Pulaski; Dr. J. W. Ross, Jr., Galax; Dr. L. C. Spengler, Roanoke; and Dr. Elizabeth L. Saunders, Blacksburg.

Dr. J. J. Giesen, Radford, is president, and Dr. H. W. Bachman, Bristol, secretary-treasurer, of the Southwestern Society.

Richmond Academy of Medicine.

The Section on the History of Medicine of the Academy held its annual meeting on April 13th. At this time a portrait of Dr. Crawford Williamson Long, Georgia physician, administering the first anesthetic, was presented the Academy by the section. The address of presentation was made by Dr. Carrington Williams who sketched the history of anesthesia from 1800 to the present. Dr. Pierce Rucker, president of the Academy, in accepting the portrait, pointed out that the use of anesthesia was the first great achievement in the history of American medicine. Dr. Beverley R. Tucker, president of the History Section, presented a paper on the life and work of Dr. Charles Edward Brown-Sequard. The guest speaker of the evening was Dr. Hubert Ashley Royster, of Raleigh, N. C., who spoke on "The Adventurous Life of Edward Warren Bey."

The Roanoke Academy of Medicine

Held its second dinner meeting of the year on April 5th. Dr. Vincent W. Archer, Professor of Roentgenology at the University of Virginia, and Dr. Louis H. Clerf, Professor of Laryngology and Bronchoscopy of the Jefferson Medical College, Philadelphia, were the guest speakers.

Albemarle County Medical Society.

Dr. Edwin P. Lehman of the University faculty spoke at the April meeting of this Society, his subject being "Appendicitis, a Tricky Disease."

Dr. V. W. Archer of the University of Virginia

XUM

and Dr. A. M. Smith of Charlottesville are president and secretary, respectively, of the Society.

The Lynchburg Academy of Medicine

Held its regular meeting at the Elk's Club on April 5th, with the president, Dr. John Wyatt Davis, presiding.

Dr. Jay Arena of Duke University, pediatrician with the Department of Clinical and Medical Education of the Medical Society of Virginia, presented a very interesting paper on the "Use of Blood Transfusion in the Treatment of Pneumonia in Children" and this was generally discussed.

Dr. C. E. Keefer of Lynchburg is secretary.

The South Piedmont Medical Society

Held its regular semi-annual meeting in South Boston, on April 20th, with the president, Dr. J. W. Devine of Lynchburg, presiding. Invited guests were Drs. J. H. Neff and H. B. Mulholland of the University of Virginia, and Dr. George Derieux of Duke Hospital, Durham, N. C. Members taking part in the program were Drs. Ernest G. Scott and Bernard H. Kyle of Lynchburg; S. E. Hughes, E. E. Barksdale, Walter McMann, and Snowden C. Hall of Danville; W. Lloyd Eastlack of South Boston, and J. M. Shackelford of Martinsville.

News Notes

Interesting Exhibition.

With all booths completed and all exhibits set in place, everything is in readiness for the opening on May 15th of the graphic exhibition to show the history and development of medical methods during the past two centuries in America. This interesting and instructive exhibition will be presented until October 1st under the direction of the Richmond Academy of Medicine, as part of the centennial program of the Medical College of Virginia and as part of the bicentennial program for Richmond arranged by the Virginia Capital Bicentennial Commission.

Contrasts between old and modern sick rooms and operating rooms, old and modern surgical instruments, old and new medical photography and illustrations, will be made. Besides this, the program includes exhibits on the evolution of transportation, a history of professional dress, a picture gallery of Richmond doctors, a special display of books written by Virginia physicians and surgeons, and an arrangement of libraries by periods.

A. M. A. Meeting.

Official call has been issued for the eighty-eighth annual session of the American Medical Association, to be held in Atlantic City, N. J., from June the 7th through the 11th. As the meeting is near home, many Virginia doctors are expected to atend. Certainly, the place, time and the fact that it is an A. M. A. meeting should be drawing cards.

The Virginia Society of Oto-Laryngology and Ophthalmology

Is to hold its annual meeting in Staunton on Saturday, May the 8th, and an interesting program has been arranged. Dr. Edwin W. Burton of Charlottesville is president, Dr. M. H. Hood of Portsmouth vice-president, and Dr. G. G. Hankins of Newport News secretary-treasurer.

Married.

Dr. Edwin Darracott Vaughan of Ashland, Va., and Miss Blanche Van Doran Bashaw of Richmond, April 3.

Dr. John Hamilton Scherer of Richmond and Miss Jessie Lee Swisher of Radford and Richmond, March 29.

Dr. James Martin Habel, Jr., of Jetersville and Richmond, Va., and Miss Allie Bryant Blue of Southern Pines, N. C., March 27.

Dr. Edward Lee Hopewell of Strasburg, Va., class of '35, University of Virginia, and Miss Effie Elizabeth Lively, February 14.

Dr. Herman H. Hines of Clincho and Bristol, Va., and Miss Dorothy May London, the latter part of March.

Dr. Samuel Howard Garst and Miss Julia Virginia Barber, both of Staunton, Va., on April 14.

Dr. James King,

Radford, Va., was among those attending the First International Conference on Fever Therapy in New York City, the latter part of March.

Dr. Newton A. Beeton,

Recently at Shenendoah Hospital, Roanoke, Va., is now engaged in general practice at Vinton, Va.

Dr. S. T. Ryang,

Class of '35, Medical College of Virginia, recently on the medical staff at Central State Hospital, Petersburg, Va., is now at Gearheart Hospital, Martin, Ky.

Medical College of Virginia News.

The college announces the following promotions in the major faculty: Dr. E. H. Terrell, from associate professor of proctology to professor of clinical proctology; Dr. Everett H. Ingersoll, from assistant professor of anatomy to associate professor of anatomy; Dr. Paul Kimmelstiel from associate in pathology to associate professor of pathology; Dr. E. U. Wallerstein from assistant professor of otolaryngology to associate professor of otolaryngology; Dr. James P. Baker, from associate in medicine to assistant professor of medicine; Dr. Ernst Fischer, from associate in physiology and pharmacology to associate professor of physiology and pharmacology; Dr. A. Stephens Graham from associate in surgery to assistant professor of surgery; Dr. Randolph H. Hoge from associate in surgery and gynecology to assistant professor of surgery and gynecology; Dr. T. D. Jones, from associate in pediatrics to assistant professor of pediatrics; Dr. Kinloch Nelson from associate in medicine to assistant professor of medicine; Dr. J. B. Stone from associate in pediatrics to assistant professor of pediatrics; Dr. George Z. Williams, from associate in pathology to assistant professor of pathology; Dr. J. H. Scherer from instructor in medicine to assistant professor of medicine; Dr. J. Blair Fitts from associate in orthopedic surgery to assistant professor of orthopedic surgery; Dr. Donald M. Faulkner from associate in orthopedic surgery to associate professor of orthopedic surgery and chief of clinic; Dr. H. Page Mauck from associate in orthopedic surgery to professor of clinical orthopedic surgery. In the school of dentistry Dr. Grant Van Huysen was promoted from associate in anatomy to assistant professor of anatomy.

Commencement exercises for the ninety-ninth annual session of the College will be held on May 30th to June 1st, inclusive.

Dr. W. W. S. Butler

Announces the association of Dr. L. C. Spengler to organize the Jefferson Urological Clinic, with offices in Medical Arts Building Lobby, Roanoke, Va.

Dr. Channing Glenn

Class of '33, Medical College of Virginia, has opened offices in Terminal Building, Petersburg, Va., where he will be engaged in general practice.

The Southern Society of Clinical Surgeons

Held its annual meeting early in April at Ann Arbor, Mich., and Detroit. In Ann Arbor, the members were guests of the University of Michigan and in Detroit of the Harper, Henry Ford and Herman Kiefer Hospitals. There was a hundred per cent attendance of the Virginia members—Drs. I. A. Bigger, John S. Horsley, Jr., Harry Warthen and Carrington Williams of Richmond, Dr. R. DuVal Jones of Norfolk, and Drs. C. B. Morton and John M. Nokes of the University of Virginia. Dr. I. A. Bigger of Richmond, Va., was elected president, Dr. Frank C. Wilson of Birmingham, Ala., vice-president, and Dr. Wm. Perrin Nicolson, Jr., of Atlanta, Ga., was re-elected secretary-treasurer. Montreal, Canada, was selected as the 1938 place of meeting.

On the last evening in Detroit, the members were taken on a tour through the Ford automobile plant and through the Ford Museum at Dearborn.

On their return from the Ann Arbor-Detroit meeting, Drs. Bigger, Williams and Horsley stopped over in Cleveland to attend the meeting of the Eastern Surgical Society. Dr. Bigger was also elected president of this Association which is to meet next year in Richmond, Va.

An Apothecary Shop.

As a feature of the Bicentennial of the City of Richmond and the Centennial of the Medical College of Virginia an old apothecary shop is being reconstructed in the Library Building of the Academy of Medicine at Twelfth and Clay Streets. If any reader of this note has or knows of anything that might be bought or borrowed for use in this shop, please communicate with one of the following:

Dr. W. G. Crockett
Dr. R. A. Deno
Mr. Roy Childrey
Mr. Lloyd C. Bird

In addition to items directly connected with the prescription department, the committee would be glad

XUM

to get old books, bottles, patent medicines and pictures.

This apothecary along with a number of other interesting exhibits depicting the progress of medicine over the past one hundred and fifty years will be open for public view after May fifteenth.

Dr. John O. Hurt,

For the past three years on the medical staff of the Western State Hospital at Staunton, Va., located at Bent Mountain, Va., the first of April and is engaged in general practice in that section.

Dr. D. Hunter Marrow

Has returned to his home at Boydton, Va., after spending the winter months, as usual, at Daytona Beach, Fla.

Virginia Tuberculosis Association.

On March 31st the annual meeting of the Virginia Tuberculosis Association was held at the Richmond Hotel, Richmond, with more than three hundred men and women in attendance. Included in those present were members of the volunteer tuberculosis organizations all over Virginia and a number of doctors and public health nurses. Fifty-two counties and sixteen cities were represented.

Dr. Esmond R. Long, Director of Henry Phipps Institute, Philadelphia, President of the National Tuberculosis Association, made an interesting address on "A Tuberculosis Control Program," telling of modern methods of treatment and preventive measures.

Dr. William A. Doppler of the National Tuberculosis Association spoke on "Health Education for the Masses" and Mr. H. Laurie Smith, President of the Virginia Tuberculosis Association, made a brief address in which he stated that the Association had now repaid in full the loans it was forced to secure in 1933 when the American Bank closed with all of its funds.

The motion picture "Behind the Shadows" was shown and prizes were presented to the three winners in the essay contest conducted by the Association among the Negro Colleges of Virginia. A program of short talks followed both the luncheon for the white delegates at the Richmond Hotel and that for Negro delegates at Slaughter's Hotel.

Dr. John N. Bowden,

Class of '34, University of Virginia, Department of Medicine, recently stationed at the U. S. Marine Hospital, Mobile, Ala., has been appointed and commissioned as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service.

Dr. J. Shelton Horsley,

Richmond, Va., delivered the J. Chalmers DaCosta Oration in Philadelphia, on the evening of April the 14th, under the auspices of the Philadelphia County Medical Society. The subject of the oration was "Peritonitis."

Medical College Alumni Council.

The following have been appointed to the Alumni Council from the Alumni Association of the Medical College of Virginia:

Dr. R. W. Miller, *Chairman*
Dr. Harry Lyons
Dr. Joseph Geisinger
Dr. Walter E. Vest
Miss Nora Spencer Hamner
Dr. W. H. Street
Dr. J. Morrison Hutcheson
Mr. Thomas L. Howard

The Alumni Council is a newly-organized body that has been recognized as the official go-between for the alumni and the administration of the college.

Dr. Harry B. Stone

Of Roanoke, Va., announces the association of Dr. Harry B. Stone, Jr., in the practice of ophthalmology and otolaryngology. They have their offices in Suite 811 of Medical Arts Building, that city.

Virginia Conference of Social Work.

The Division on Public Health and Medical Care of the Virginia Conference of Social Work, held in Richmond, April 7-10, adopted resolutions concerning the prevalence and control of venereal diseases in Virginia. These findings are published in a Miscellaneous Department in this issue of the MONTHLY.

At this meeting Dr. Basil Jones and Dr. Samuel Anderson, both of Richmond, were elected chairman and vice-chairman, respectively, of the Health Council of the Council of Social Agencies. Miss Miriam Dettelbach is the secretary.

Dr. and Mrs. Charles P. M. Sheffey,

Missionaries for the Southern Methodist Episcopal Church in the Belgian Congo, have just returned to the States for a year's vacation. They are accompanied by their two young daughters and will spend most of their time on leave with relatives in Lynchburg and Heathsville, Va.

XUM

Tribute Paid Dr. Wilmer.

A bronze plaque was unveiled in the Chapel of St. Joseph of Aramathea in Washington, D. C., on March 27th, in tribute to Dr. William Holland Wilmer, known throughout the world for saving the sight of countless thousands. Dr. Wilmer, a native Virginian, practiced in Washington for a number of years and was active head of the Wilmer Institute at Johns Hopkins University, Baltimore, from the time it was founded until his retirement in 1934.

Dr. John Bonner,

Stony Creek, Va., has been appointed chairman of the program committee of the Ruritan Club of that place.

Dr. William H. Parker,

Affectionately known by Richmond baseball enthusiasts as "the father of amateur baseball here," was honored by former baseball stars at a dinner at Hotel Richmond on April 17th.

Doctors Take Part in Exercises.

At the dedication of the Turbeville Agricultural High School on April 14th, Dr. C. D. Barksdale, chairman of the Halifax County Board of Supervisors, received the school for the county, and Dr. John A. Owen also took part in the program.

The Virginia Academy of Science

Will hold its annual meeting at the University of Virginia, May 7-8, under the presidency of Dr. H. E. Jordan, assistant dean and professor of histology of the Medical Department of the University. The Academy now has nine sections and more than 750 members and the attendance at the Charlottesville meeting is expected to be the largest in the history of the organization. Dr. E. C. L. Miller, Richmond, is secretary-treasurer.

Appointments by Governor Peery.

Dr. Ernest Trice, Richmond, has been appointed to the State Prison Board to fill the unexpired term of Colonel LeRoy Hodges.

Dr. I. C. Riggin, State Health Commissioner, has been named a member of a commission to study pollution in the Potomac River Basin. They will work with similar groups appointed from West Virginia, Pennsylvania, Maryland and the District of Columbia.

The American Association for the Study of Goiter

Will hold its annual meeting at the Book-Cadillac Hotel, in Detroit, Michigan, June 14-16, under the presidency of Dr. Nelson M. Percy, Chicago. A tentative program has been prepared and promises to be quite interesting and instructive.

Information with regard to this meeting may be obtained from Dr. W. Blair Mosser, Corresponding Secretary, Kane, Pa.

A National Congress of Obstetrics and Gynecology.

In the February 1937 issue of the *American Journal of Obstetrics and Gynecology,* it is stated that the last International Congress of Obstetrics and Gynecology was held in Berlin in 1912. Since that time, efforts to develop another have not met with much success. Holland is now attempting to do so and has called a Congress to meet in Amsterdam in 1938. It is suggested that the United States might take steps to hold a national congress possibly in 1939. Such a congress should be comprehensive in all respects and include the general practitioner as well as the specialist. The congress must be in response to a demand, it must reflect a desire for information and discussion, it must impress itself on the public as well as the professional mind, as a means to an end.

The American Journal of Obstetrics and Gynecology is desirous of giving its support to the contemplated movement and in subsequent issues will present further information as it develops.

Dr. M. P. Rucker,

Richmond, Va., by invitation, recently addressed the Jefferson County Medical Society at Louisville, Ky., his subject being "The Effect of Diet on Pregnancy."

Dr. Robert S. Montgomery,

South Hill, Va., was recently elected to serve on the board of directors of the Rotary Club of that place for the coming year.

Dr. Otis T. Amory,

Newport News, Va., retiring president, has been named a member of the executive committee of the Men's Board of the Methodist Orphanage located in Richmond.

XUM

Gill Memorial Clinic.

At the eleventh Annual Spring Graduate Course of the Gill Memorial Eye, Ear and Throat Hospital in Roanoke, Va., recently, there was a total registration of sixty physicians from twenty states. The program in 1938 will also be given in the second week of April.

Officers in Rotary.

Dr. J. R. Tucker has been re-elected vice-president of the Williamsburg Rotary Club, and Dr. T. B. Henderson is a new member of the board of directors. Both are from Williamsburg.

Wanted—

By 30-bed hospital, located in Southwest Virginia, young graduate in medicine, licensed in Virginia, to help with general medical, surgical and obstetrical services. Position pays maintenance and $50.00 monthly to start. References required. Address "Southwest Virginia", care this journal. *(Adv.)*

Wanted—

A resident intern at a nervous and mental disease hospital. Requirements—one year general internship and licensed in Kentucky. Salary $75.00 per month with maintenance. Address "Hospital," care this journal, 1200 East Clay Street, Richmond. *(Adv.)*

Wanted—

Young physician as associate to assume major part of village and country general practice in Eastern Virginia. Gentile preferred. Address "Practice," care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond. *(Adv.)*

Obituary Record

Dr. Ira Hurst,

Prominent physician and citizen of Parksley, Va., died at the U. S. Marine Hospital in Baltimore, Md., on March the 28th. He was a native of the Eastern Shore and fifty-seven years of age. Dr. Hurst graduated in medicine from the University of Virginia in 1904, after which he served internships in New York and Baltimore. From 1906 to 1908, he was with General Gorgas in Canal Zone, Panama. Returning from Panama, he located at Parksley where he had since practiced except for the time he was in the Medical Corps of the U. S. Army during the World War. He was active in the American Leegion and was the first commander of Accomack Post No. 23 of the Legion. His wife and a brother survive him.

Dr. Carl William Shaffer,

Alexandria, Va., died April 13th. He was forty-nine years of age and a graduate of the University of Virginia, Department of Medicine, in 1915. Dr. Shaffer was formerly an Army surgeon, and had the rank of Major at the time of his retirement. He was a member of the Medical Society of Virginia.

Resolutions on Dr. W. A. Reese.

WHEREAS, The Great Creator in His wisdom has seen fit to call unto Himself the soul of our colleague and friend, Dr. William A. Reese; and

WHEREAS, The personal loss of one who gave of himself so freely is great; we, the Petersburg Medical Faculty, in special meeting assembled, bow in grief yet in humble submission to the will of the Father who does not willingly afflict or grieve the children of men. Now, therefore, be it

RESOLVED, That a copy of these resolutions be incorporated in the minutes of the Petersburg Medical Faculty, a copy be sent to the bereaved family with the expression of our sincere sympathy; a copy be sent to the local press, and a copy be sent to the VIRGINIA MEDICAL MONTHLY.

MASON ROMAINE, *Chairman*,
L. S. EARLY,
GEORGE H. REESE,
W. M. BOWMAN, *Secretary*.

Dr. Downing Stickley,

Fairfield, Alabama, died April 12th of spinal meningitis. He was 38 years of age and the son of Dr. and Mrs. P. B. Stickley of Stephens City, Va.

Dr. John Rainey Parker,

Lynn, Massachusetts, died January 12th, at the age of 59. He was a graduate of the former University College of Medicine, Richmond, Va., in 1901.

Dr. Archibald Magill Fauntleroy,

Captain, U. S. N., M. C., retired, died April 13th in a New York hospital. He was a native of Staunton, Va., and sixey-one years of age. Dr. Fauntleroy graduated from the Department of Medicine, University of Virginia, in 1901, and was formerly a member of the Medical Society of Virginia.